TRAINING AND FAMILIARIZATION WITH THE BATTLE COMMAND SUSTAINMENT SUPPORT SYSTEM

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14. ABSTRACT

Commanders always require a large amount of data in order to maintain situational awareness, a very complicated endeavor especially during deployments in Iraq or Afghanistan with subordinate units spread across the country. The Battle Command Sustainment Support System (BCS3) is the logistics Battle Command system that provides command and control to logistics commanders. The BCS3‟s capabilities include the logistics common operating picture, In-transit visibility of convoys and commodities, logistics status and Standard Army Information System reporting, and Reception, Staging, Onward Movement, and Integration.

Unfortunately, in spite of its vast capabilities, units underutilize the BCS3 in the field. There are numerous possible reasons for the low use of the system as a whole and evidence also points to lack of use in specific modules and program capabilities. Although recent BCS3 software improvements may assist operators to perform common tasks, a key to increasing the BCS3‟s popularity is to improve familiarization by logistics managers specifically. Training and certification of Functional Area 90 students during their attendance at Intermediate Level Education at the Command and General Staff College should increase their willingness to use the BCS3 in the field.

Findings of this study conclude that a correlation does not exists between confidence to manage BCS3operators in the field but willingness to operate and manage the system is dependent on three factors: (a) the amount, quality, and type of formal BCS3 training, (b) the degree of familiarization to the BCS3, and (c) how well the logistics manager understands the capabilities within the BCS3.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

TRAINING AND FAMILIARIZATION WITH THE BATTLE COMMAND SUSTAINMENT SUPPORT SYSTEM, by Donald C. Santillo, 109 pages

Commanders always require a large amount of data in order to maintain situational awareness, a very complicated endeavor especially during deployments in Iraq or Afghanistan with subordinate units spread across the country. The Battle Command Sustainment Support System (BCS3) is the logistics Battle Command system that provides command and control to logistics commanders. The BCS3‟s capabilities include the logistics common operating picture, In-transit visibility of convoys and commodities, logistics status and Standard Army Information System reporting, and Reception, Staging, Onward Movement, and Integration.

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To my fellow BCS3 combat development officers and all of the staff of the Enterprise Systems Directorate, TRADOC Capabilities Manager in CASCOM: thank you for all of your support during my assignment there. Additionally, I would like to give a special thanks to Mr. Robert Banks and Mr. Randy Goertz for their assistance while I completed this thesis.

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TABLE OF CONTENTS

Page

ACRONYMS

ABCS	Army Battle Command System
BCS3	Battle Command Sustainment Support System
BCT	Brigade Combat Team
BFT	Blue Force Tracker
BSB	Brigade Support Battalion
C2	Command and Control
CALL	Center for Army Lessons Learned
CASCOM	Combined Arms Support Command
CCIR	Commanders Critical Information Requirements
CGSC	Command and General Staff College
COSCOM	Corps Support Command
CPOF	Command Post of the Future
ILE	Intermediate Level Education
ITV	In-Transit Visibility
LCOP	Logistics Common Operating Picture
LOGSTAT	Logistics Status
LRT	Logistics Reporting Tool
MNC-I	Multi-National Corps-Iraq
MRX	Mission Rehearsal Exercise
MS	Microsoft
MSR	Main Supply Route
MTS	Movement Tracking System
NCO	Non-Commissioned Officer

NIPR	Non-Secure Internet Protocol Router
OPVIEW	Operational View
PM	Product Manager
RFID	Radio Frequency Identification
RSOI	Reception, Staging, Onward-movement & Integration
SA	Situational Awareness
SIPR	Secret Internet Protocol Router
SPO	Support Operations Officer
STAMIS	Standard Army Management Information Systems
TCM	Training and Doctrine Capabilities Manager
TIL	Tracked Items List
TSC	Theater Support Command
UTO	Unit Task Organization

ILLUSTRATIONS

Page

TABLES

Page

CHAPTER 1

INTRODUCTION

Overview

The Battle Command Sustainment Support System (BCS3) is the Army‟s sustainment command and control (C2) system used to fuse sustainment, in-transit visibility (ITV), and force data displayed on a Logistics Common Operating Picture (LCOP) to aid commanders in making critical decisions at all levels.[1] As the logistics component of the classified portion of the Army Battle Command System (ABCS) the BCS3 is run on the Secret Internet Protocol Router (SIPR) network.[2] Battle Command services provided by the BCS3 include commodity tracking, convoy operations, convoy tracking, and management of Reception, Staging, Onward-movement and Integration.[3] Additionally, operation of the BCS3 on the Non-Secure Internet Protocol Router (NIPR) network provides map-centric displays on unclassified workstations and the ability to exchange logistics information with other unclassified databases or systems. Examples of this include the Logistics Information Warehouse of the Logistics Support Activity, Standard Army Management Information Systems (STAMIS), and the Movement Tracking System (MTS).

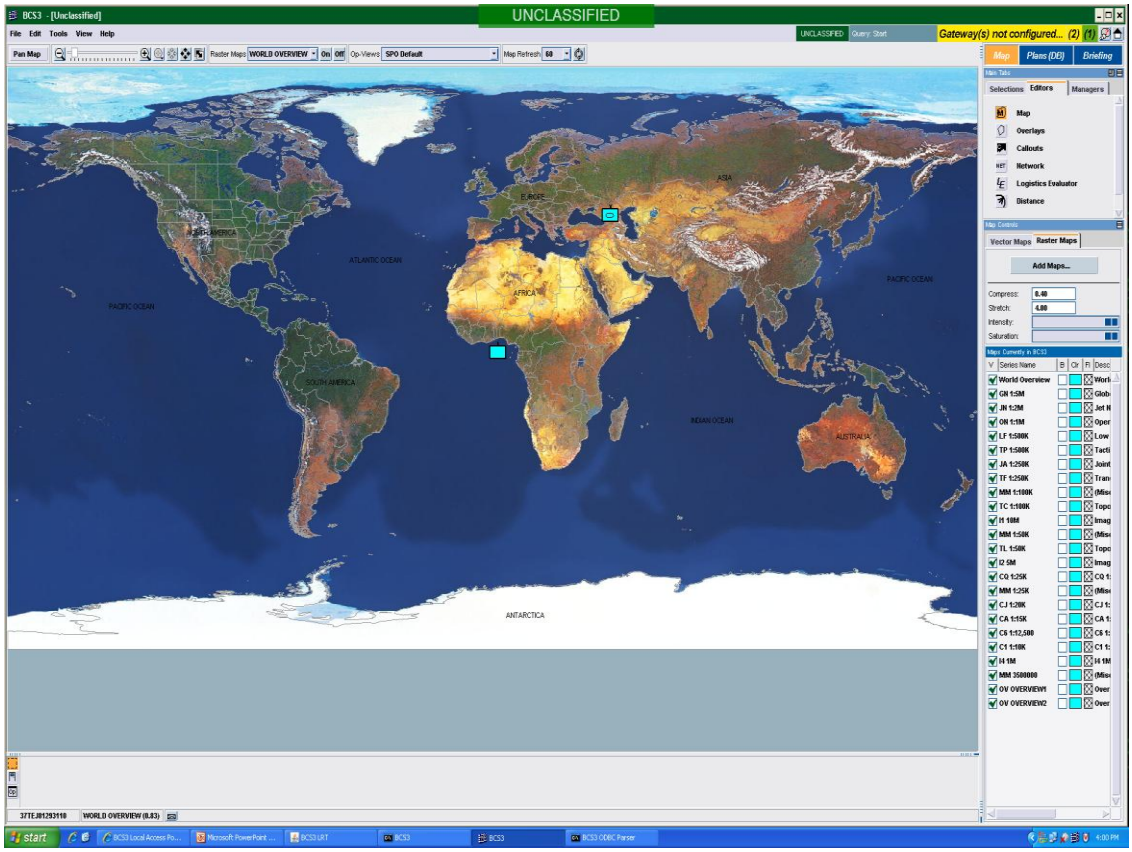

Figure 1. Worldview of the BCS3 LCOP

Source: Created by author, BCS3 Software, 29 March 2010.

In-Transit Visibility

Movement tracking occurs when a vehicle, supply, or equipment with some type of tracking device passes an interrogator that updates the position via satellite. Updates usually register within seconds of passing an interrogator but the subsequent update may vary due to ground distance between interrogators, and rate of speed the vehicle is moving. Location of interrogators is normally at all areas of embarkation and debarkation sites, control access areas, and along ground routes.

The BCS3 requires numerous systems and information feeds to display a robust LCOP. Various systems feed data to the BCS3 in order to display complete vehicle movement information on the map. Blue Force Tracker (BFT) is a classified mode system that displays military vehicles by line of sight and a satellite link.. Satellite tracked systems such as MTS, the Defense Transportation Reporting and Control System, and the Global Data Monitoring System use Global Positioning System type technology. All of these systems are non-secure and support different vehicle types. Defense Transportation Reporting and Control System is for military vehicles, Global Data Monitoring System for non-military vehicles and MTS supports both. If a vehicle is equipped with any of these systems, it will display on BCS3.

The BCS3 tracks equipment and supplies by the use of Radio Frequency Identification (RFID) tags. Preparation for shipping a container, pallet, or vehicle includes encoding and attaching an RFID tag. Equipment and supplies are visible on the BCS3 map throughout the shipping process based on the location of the RFID tag. During RFID tag encoding the operator inputs all pertinent data for the shipment associated with a unique tag number. After entering an RFID number in the BCS3, a user can display all of the supplies or equipment associated with that tag by type, class of supply, and quantity. Unfortunately, information is only available if the tag is encoded properly. Many times, there is little or no information due to human error, non-compliance to RFID tag burn procedures, or battery failure.

Organizational, Joint and Inter-agency Application of the BCS3

The BCS3 manages strategic, operational, and tactical level logistics on the battlefield. Sustainment units that employ the system include the Forward Support

Company, Brigade Support Battalion (BSB), Combat Service Support Battalion, Sustainment Brigade, Expeditionary Sustainment Command, Theater Sustainment Command (TSC) and the Surface Deployment and Distribution Command.[4]

In the joint realm, the United States Marine Corps utilizes the latest version of the BCS3 tailored to Marine requirements. Joint Forces Command completed an evaluation of service software suites and recommended the BCS3 as the logistics system for joint staff operations.[5] Outside of the Department of Defense; the Department of Homeland Security is a BCS3 user in coordination with the National Guard Bureau to provide logistics C2 during natural disasters. Logisticians of all backgrounds regardless of branch, service, or inter-governmental department find the BCS3 a robust map-centric, logistical C2 tool.

Recent Software Upgrades

In 2009, a new version of the BCS3 software began the fielding process to correct numerous challenges reported from the field. The most significant change involved redesigning the BCS3 toward "user friendliness" by eliminating simulation functions, reorganization of toolbars and menus, and the addition of a handy filter wizard. These enhancements gave the BCS3 a cleaner uncluttered look without eliminating any needed capability.

Start-up procedures changed drastically in the recent version of the software. The first time an operator logs on the BCS3 the start-up process was lengthy to allow for the creation of a username and a profile. The new version streamlines subsequent logons by linking to the initial profile. Additionally, users may choose preexisting operational views (OPVIEWS) based on the specific requirements of their duty position.

Logistics Reporting Tool

The most recent version of the BCS3 software offers a Logistics Reporting Tool (LRT), which is an automated version of reporting the logistics status (LOGSTAT). A single point of data entry application, the LRT provides "bottom up" reporting for all classes of supply. Key commodities without a STAMIS such as Class I (sustenance), Class III (fuel), and water benefit most from the LRT"s capability. Spreadsheet design based, the LRT is very user friendly, and therefore requires minimal LRT specific training.

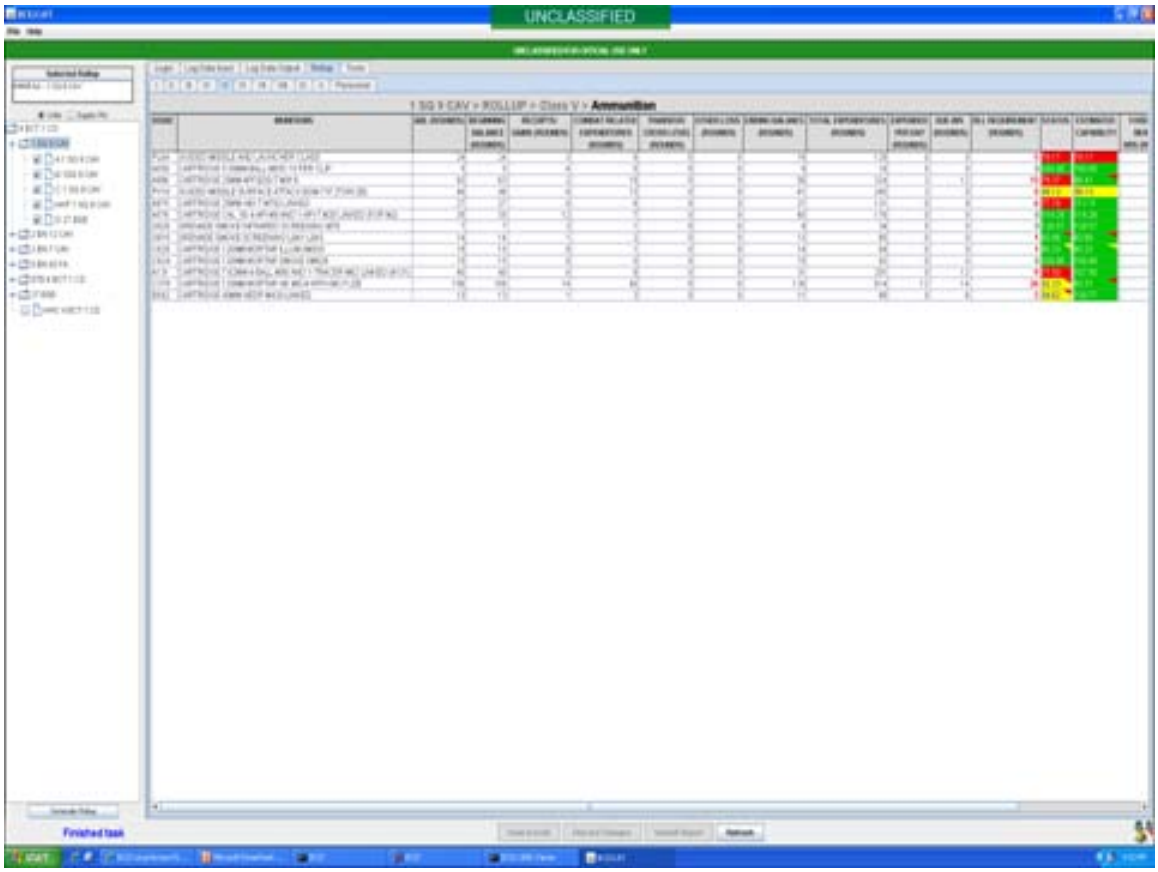

Figure 2. LRT Class V report

Source: Created by author, BCS3 Software, 29 March 2010.

LOGSTAR

Managers of commodities without a dedicated STAMIS will find the LRT particularity useful. Historically, units accomplished the management and reporting of commodities such as fuel and water via a cumbersome process of emailing multiple Excel spreadsheets (sometimes referred to as LOGSTAR). Normally, higher headquarters created the spreadsheets and pushed them down to subordinate units. Lower activities submit appropriate spreadsheets to the next higher command. Typically, quality checks at each level result in units volleying spreadsheets until correct. Likewise, each command level consolidates data from like activities and forwards it on to the next higher command; and so forth. Due to the numerous manual data entries at every level and the long trail of email traffic, this process is inefficient, lengthy, and prone to human error. As a single source of data entry, the LRT is efficient, fast, and accurate. For example, supply point clerks submit a report and the information is immediately available for all LRT account holders. The LRT eliminates manual spreadsheets and the associated equation errors, reduces email traffic, and most importantly, provides logistical planners and commanders at all levels accurate real time commodity information.

Unit Task Organization

The Unit Task Organization (UTO) feature of the LRT ensures generated reports which include data for specific units. Specifically the LRT facilitates the modification or creation of additional UTOs, a powerful capability in today‟s dynamic organizational environment. An example would be, the attachment and detachment of units due to specific missions.

Tracked Items List

Another important LRT capability is the Tracked Items List (TIL) feature. A TIL makes it easy for commodity managers, Support Operations Officers (SPO), and clerks to highlight specific classes of supply from either the default Federal Logistics Data or non-Federal Logistics Data lists created by other users. Operators can further tailor non-Federal Logistics Data lists for their specific needs. Any item that is not listed in Federal Logistics Data or a published TIL is easily created by the operator and then available for other users.

Stand Alone Application

An additional benefit of the LRT is that it is stand-alone software. LRT software is loaded on all of the BCS3 Modified Table of Organization and Equipment systems and is also easily downloaded to any computer. As most supply points and Supply Support Activities do not have the BCS3 systems readily available to them the ability to download the LRT to any computer gives them a simple, quick, and automated application to report LOGSTAT data.

BCS3 Local Access Point

In addition to having the stand-alone capability of the LRT, many BCS3 capabilities are internet accessible via the BCS3 Local Access Portal. Commanders, SPOs, commodity managers, and S4s can access all LOGSTAT and STAMIS reports quickly and conveniently. Inclusion of the LRT and the Local Access Portal can easily increase the amount of personnel in a unit exposed to data in the BCS3.

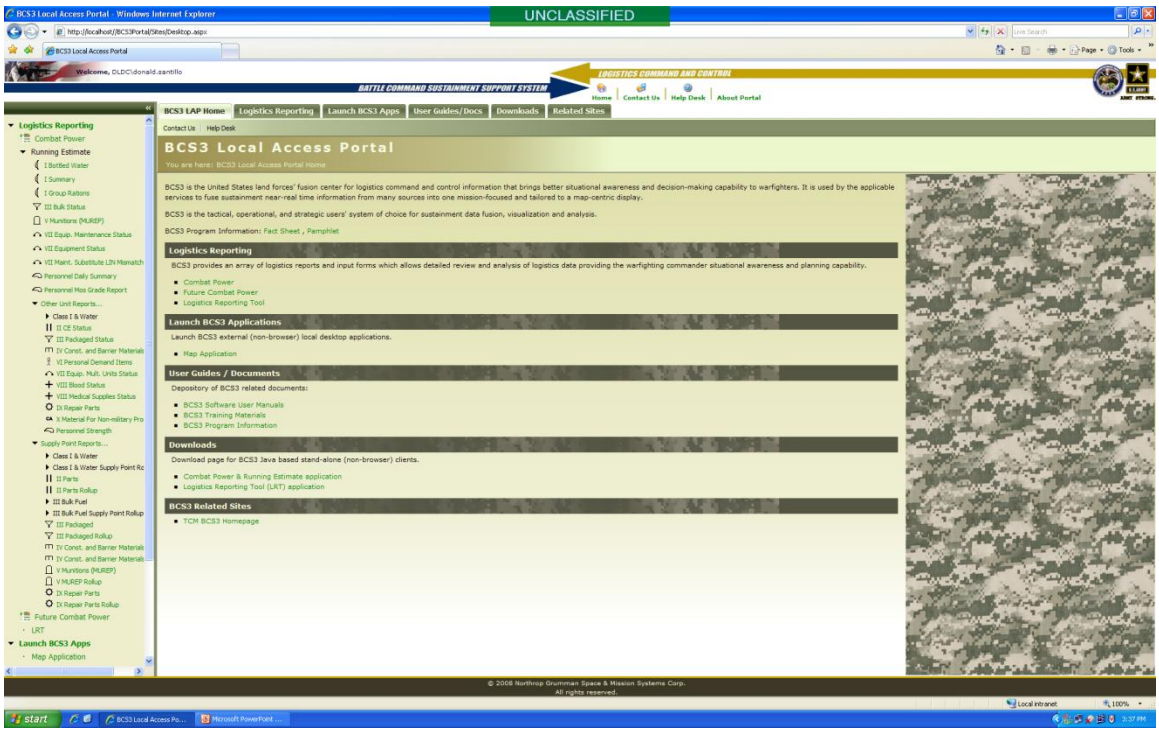

Figure 3. The BCS3 Local Access Portal
Source: Created by author, BCS3 Software, 29 March 2010.

Despite improvements, the current version of BCS3 still only receives limited use in the field. In fact, most units employ only a small portion of their Modified Table of Organization and Equipment authorized BCS3 systems. Discussion of the reasons for BCS3 underutilization Army-wide follow in the BCS3 issues section of this paper. Commanders, senior staff officers, and operators must approach the BCS3 with an open mind and experience firsthand the power the BCS3 brings to logistics C2, reporting, and situational awareness (SA).

Purpose

The purpose of this study is to understand some of the reasons for under utilization of the BCS3 in the field and to attempt to find out if additional training and

familiarization of field grade logistics officers to the system will increase their desire to use BCS3 in future assignments. In the end, the goal of the study is to increase the exposure of field grade officers to BCS3 in the hope that their understanding of the capabilities of the system will lead to increased use of the BCS3 in the field. Increased use of the system benefits the army directly by getting more return from the tool that it has invested in but also indirectly by the man-hours saved due to the increased efficiency that BCS3 delivers.

BCS3 Problems

Numerous issues cause low usage of the BCS3 by units in the field. Although the BCS3 offers tremendous capability for logisticians at all levels of war to include the joint environment, units in the field continue to under utilize the system. Part of the problem is that the BCS3 was a product of the Joint Deployment and Logistics Model. By design, the Joint Deployment and Logistics Model is a logistics simulation and training tool, so unlike the BCS3 it does not incorporate "live" or real world data. Currently, the Joint Deployment and Logistics Model simulates the BCS3 during logistics training such as a Mission Rehearsal Exercise (MRX) or Command Post Exercise-Support in specific scenarios. The Army developed the BCS3 as a quick solution to replace the inadequate Combat Service Support Control System. The BCS3 suffered several problems early as an underdeveloped simulation based tool used as a single source logistics C2 and a LCOP.

Data Integrity

A complaint from the field concerns the accuracy of the BCS3 data. Data integrity was a valid concern not blind skepticism. The BCS3 received information from numerous sources and stored it in two separate unsynchronized databases. Information retrieval varied depending on the database accessed and timing. The latest version of the BCS3 alleviated this issue by converting and storing information in one database. Therefore, the BCS3 data integrity is now trustworthy and dependable.

Look and Feel of the BCS3 Software

The BCS3 software originated as a rudimentary simulation tool. Consequently, the user interface was not intuitive or user friendly, with cluttered menus. The biggest drawback was that the BCS3 did most tasks in a non-windows type environment. Even the simplest of tasks, such as creating basic filters was complicated in the BCS3.

Additionally, the use of non-standard terms in place of standard Army terminology created confusion. For example, using the command and control layer in place of overlays and mount for cargo. Additionally, many of the applications in the BCS3 required re-routing to numerous internet protocol addresses i.e. combat power, the TIL, and the ABCS environment.

Starting the BCS3 was not only lengthy but it was also a slow process as it took several minutes to transition through various screens. Numerous system errors further exacerbated and frequently required the user to reboot the system entirely. After enduring several restarts, many users opted to seek out other systems over the long and frustrating BCS3 process.

Training

Because the software was not user friendly, it required extensive training on a skill that is highly perishable. Initially, the Army fielded the BCS3 to units just prior to deploying preventing adequate training opportunities. Today, the BCS3 fielding, along with New Equipment Training occurs early in the pre-deployment process potentially causing the opposite dilemma. Early pre-deployment requirements on units and individual Soldiers can cause the BCS3 skills to atrophy way before the MRX or Command Post Exercise-Support. To maintain currency, operators and managers must sustain exposure to the BCS3 to avoid skill erosion. Additionally, the multitude of pre-deployment tasks for mid-grade officers and senior non-commissioned officers (NCOs) competes with their availability to attend the BCS3 training.

Embedded Officers

Due to such training challenges, many high-level headquarters receive assistance implementing the BCS3. During a unit's deployment training exercises, BCS3 subject matter experts assist the unit in the training, employment, and operation of the BCS3. Specifically, when the unit deploys support personnel embed with the unit to provide assistance during the deployment. Occasionally, this support came in the form of an Army captain or major from the Training and Doctrine Capabilities Manager (TCM) office of the United States Army Combined Arms Support Command (CASCOM). Unfortunately, the TCM for BCS3 can only afford a few personnel for such missions because it temporarily pulls them away from their Combat Developer duties. Such un-resourced use of Combat developers further delays much needed BCS3 software development.

Embedded Contractors

Typically, contractors fill the embedded positions. Although contractors provide a valuable service, contract support is costly to the Army; and many times, the supported unit pays for the service. Another problem may arise when relying on outside temporary and non-organic support. BCS3 operators and BCS3 support personnel foster a habitual relationship to perform the mission. Severing this bond at the end of a deployment when embeds leave the unit flattens the BCS3 learning curve. Additionally, many operators tend to rely on the contract support heavily and do not utilize the system on their own

Software Blocking

An additional problem in the BCS3 development is due to the Battle Command policy of a concept called "software blocking" for the ABCS. Software blocking is a process to deliver updated versions of the different ABCS software simultaneously to ensure compatibility, limit the amount of ABCS software testing, and most importantly, decrease turbulence to users in the field. While these are all valid reasons for the use of software blocking the policy creates a major shortfall by dramatically delaying updates to the field. If the software for the majority of the subsystems is ready for an update, there still is a delay waiting for the remaining subsystems to reach maturity. Delays continue until all of the subsystem software passes the compatibility testing. Consequently, major software updates normally take years to field. Fortunately, in 2008 approval of an exemption to the software blocking policy requested by the former BCS3 Product Manager (PM), LTC Anthony Evans, allowed for the release of a crucial software upgrade to the field.

Basis of Issue Plan

The Basis of Issue plan determines the number of the BCS3 systems authorized for the different types of units. The authorized quantity on the Modified Table of Organization and Equipment comes from the Basis of Issue Plan. Many factors determine the number of authorized BCS3 systems such as unit type, echelon, and duty position. The BCS3 Basis of Issue Plan disproportionately authorizes BCS3 systems to the operational level versus the tactical level. At the highest echelons of operational units there are far more BCS3 systems authorized than required. A TSC or Expeditionary Sustainment Command has thirty nine BCS3 systems authorized; yet both echelons normally employ between twelve and fifteen systems.[6] Other authorized BCS3 systems end up as ordinary laptops to supplement shortages or lay idle. Meanwhile at the lower echelons, a stark difference prevails; a BSB, and a Combat Service Support Battalion, rate only four systems, a Forward Support Company a meager one system!

A more even distribution of the systems would benefit overall BCS3 effectiveness. Current distribution does not allow sections in units at the battalion level the option to operate on the NIPR and SIPR environments independently. To operate in both environments, a process normally done at the Expeditionary Sustainment Command and TSC level, sections would have to share systems, because of an authorization of only one BCS3 system in an individual section. Due to distance between sections, sharing of BCS3 systems is not a viable solution. At the company level there would obviously have to be a decision on what environment to use the BCS3 in as there is only one system authorized.

The BCS3 distribution solutions could involve transfer of systems from the TSC and Expeditionary Sustainment Command sections that have other functional systems (i.e. the Electronic Military Personnel System) in the S1/G1 shop. Shifting the authorization for these systems down to the battalion and company level will enable the lower echelon units to operate in both the NIPR and SIPR environments. As long as the distribution of systems remains out of balance, lower echelon units will experience a shortage of BCS3 capability where it is needed most, closest to the battle.

Competing Software

In the current environment, the warfighter deserves all tools necessary to complete the mission. Regrettably, a spending spree on numerous technological solutions resulted in different software packages with parallel capabilities (i.e. redundancy in the various ground ITV systems). An advantage of the BCS3 is the capability to display not only all of the ground ITV sources but also Global Transportation Network information for both air and sea vessels. Many operators do not know the BCS3 has this capacity or just prefer to go directly to the primary source of the information, even if that means less capability. An example of enhanced functions in the BCS3 is the ability to interface with MTS to gain SA with this and other ground vehicle systems. An operator can conduct MTS messaging directly from the BCS3 system, display the message trail of all vehicles involved in the MTS dialog, and retain all previous MTS messages. An MTS operator cannot perform this task at an MTS station because new messages replace old messages in the cache. Although the BCS3 provides more capabilities, many operators prefer an MTS station simply because of familiarity with MTS and inexperience with the BCS3. The command climate often influences operators‟ likes and dislikes.

Command Influence

In the field, a commander has the discretion to use or not use any of the numerous tools available. No matter how much investment by the Army, senior leaders do not mandate use of specific systems such as the BCS3. Although a commander should have this prerogative, such decisions influence the perception of these systems. If the commander is not on board with a particular system it will not likely get much use by the staff. Additionally, if a higher command does not use or enforce utilization of the BCS3 the subordinate units do not even consider use of the system. On the other hand, if a commander encourages or mandates the use of a particular system the staff will, at the very minimum, attempt to learn and use that system. As long as commanders decide, many systems will not meet their full potential. PMs must ensure that commanders, field grade officers, and senior NCOs participate in system implementation plans to foster integration of said system into the unit.

Problem

The Army‟s dilemma is that it has spent millions of dollars to research, develop, test, field, train personnel, and support the BCS3 yet the use in the field has not paid off. Problem statement: The lack of emphasis on institutional management training on the BCS3 for Functional Area 90 field grade officers correlates directly with under-utilization in the field.

Research Questions

Primary Research Question

Primary research question: Would mandating BCS3 training and certification for Functional Area 90 students during Intermediate Level Education (ILE) at the Command and General Staff College (CGSC) increase their willingness to use the system in the field?

Secondary Research Questions

Secondary research questions:

1. Will the use of an automated LRT save logistics officers enough time performing duties to increase their willingness to use the BCS3?

2. Do logistics officers attending ILE at CGSC have confidence in their knowledge of the numerous functions and capabilities available in the BCS3?

3. Can logistics officers attending ILE at CGSC manage BCS3 operators on the system?

4. Can logistics officers attending ILE at CGSC describe what functions they want displayed on a BCS3 system to the BCS3 operators?

5. Have logistics officers attending ILE at CGSC received any previous BCS3 training? If so, was the training adequate to enable them to manage BCS3 operators?

Assumptions

Assumptions, relevant facts, policies, and conditions follow:

1. Items discussed in this section will remain the same for the foreseeable future.

2. The Army will continue to fund the research and development of the BCS3 and its sub-applications.

3. The BCS3 will remain the only logistics C2 tool available to army logisticians.

4. Use of the BCS3 will remain at the discretion of commanders in the field.

5. The United States Army will continue to be involved in major operations at forward deployed locations where complicated logistics tasks occur daily.

6. A multitude of pre-deployment tasks for mid-grade officers and senior NCOs will continue to inhibit their ability to attend management-based training on tools such as the BCS3.

Definition of Terms

A group of terms relevant to this study follows. These terms are common to most members of the United States Army but may not be to the general public. Definitions herein are by the author. Inclusion of the term definitions may assist readers unfamiliar with military jargon.

Army Battle Command System (ABCS)--a digital Command, Control, Communications, Computers, and Intelligence system for the United States Army. A family of software systems it combines an automated view for commanders‟ and staff on friendly activity, logistics, fires, intelligence, airspace, and weather.

Federal Logistics Data (FEDLOG)--Information on supplies and equipment such as name, part or stock numbers, and shipping codes that enable personnel to identify, order, and track these items.

In-transit Visibility (ITV)--The ability to view supplies, equipment, vehicles, aircraft, and ships during movement, viewed as coordinates in text or icons on a map. It

may be utilized during normal operations such as vehicles driving on a road or during the shipping process.

Limited User Evaluation (LUE)--A field test of software where operators use an early version to find issues, ensure it covers the required capabilities, and submit information to improve the software.

Logistics Information Warehouse (LIW)--A United States Army database that consolidates information from multiple sources on one easy to use web page.

Logistics status (LOGSTAT)--Information on logistics data such as quantities of supplies and maintenance data as reported by a unit or supply point.

Mission Rehearsal Exercise (MRX)--A training event that assesses the ability of a unit to perform their mission and provides valuable feedback to improve upon identified shortfalls.

Modified Table of Equipment (MTOE)--Document that provides information on the authorized personnel and equipment of a unit.

Standard Army Management Information Systems (STAMIS)--United States Army specific automation hardware and/or software used as a system of record for logistics transactions.

Unit Task Organization (UTO)--The organization of a military unit that identifies subordinate units and any other unit with which it has a command or support relationship.

Limitations

Time

This study took about ten months to conduct research, analyze information, and document the findings. The competing requirements at a graduate level education

program further limited available time. Although the time restriction decreased the scope of the study, there was no loss in validity of data.

Information or Data

The Combined Arms Research Library provided a wealth of useful data and materials without direct limitation to information access. Limitation to information access was only due to the time restriction. This time restriction combined with no possibility for travel research narrowed the ability to survey and interview personnel outside of the CGSC. Without such restrictions, gathering information may have expanded to a broader group.

Investigator‟s Research Experience

Conducting original research is a limitation of the author. Previous research experience consisted of undergraduate research, over 12 years ago, with a much narrower scope than this study.

Negating Investigator‟s Bias

When conducting research the investigator may have strong ties to the research topic such as passion for the issue or previous work in the subject area. If this is the case, it is important to identify steps taken in the study to negate this bias. The investigator of this study spent nearly three years working with the BCS3; details of this experience are in chapter 3. Due to this experience, it is necessary to outline measures taken to ensure the study remained balanced. The first step was identifying eight major problems of the BCS3, some of which are not problems readily known in the field, and dedicating nearly one third of this introduction discussing them. Additionally, the survey included

questions that assumed negative responses to the BCS3 for inclusion into the analysis. All of the results of the analysis were identified whether or not they favored a specific research question or the research in whole. Finally, identification and discussion of numerous unexpected results are in chapter 5 including those that do not support the study.

Scope

The scope of this study is to consider how BCS3 training and exposure at ILE affects logistics officers. Survey information only considers logistics officers that are students of class 2010-01 of ILE at the CGSC in the rank of Captain, Major, or Lieutenant Colonel. Additional data consists of service members experiences with the BCS3 obtained from military publications, interviews, and research papers.

Earlier in this chapter there were eight BCS3 problems identified but this study focuses only on training. Numerous factors led to the focus. The first and most important item is training of managers on the BCS3 along with command influence will have the most impact on increasing use of the system. Of these two items training is the only problem that this research could study at the CGSC due to accessibility to commanders in the field and both time and travel constraints.

Significance of study

Military Practice

Results of this study could increase the use of the BCS3 by units in the field, thus improving the cost benefit ratio for expenses incurred by the Army. Increased use of the BCS3 could have a major impact on how a unit manages and reports logistics data. A

decrease in the man-hours needed to accomplish these tasks could prove to be significant. Managers and staff members will have more time to plan, rehearse, and execute their missions with a decrease in time to track, manage, and report logistics data.

Educational Significance

During the course for academic year 2010-01, four staff sections utilized the BCS3 during the C400, C600, O100, and O300. For academic year 2011-01, the BCS3 will extend into all classrooms. With increased use of the BCS3, the numerous exercises in the curriculum at the CGSC will create a realistic scenario for not only logistics officers but also all students. Putting the BCS3 to use in all the classrooms will increase logistic officer experience with tracking visibility of units, supply, equipment, and vehicles. Additionally, the BCS3 will assist students to think about logistics critically adding to the overall educational experience. While this is a step in the right direction, further implementation is necessary. Discussion of additional progress with BCS3 at ILE is included in chapter 5.

Summary

The BCS3 is an excellent C2 tool for logisticians with numerous capabilities across a wide variety of functions. BCS3‟s broad scope and diverse applications may seem overwhelming to those without adequate training or familiarity. Recent updates to the system have not only streamlined and improved the integrity of the BCS3, but have also made progress toward making the system easier to operate. Providing training and encouraging use of the BCS3 at ILE may increase use of the system by logistics officers

upon return to field units. Many officers have written about their experiences with the BCS3 and a discussion of those experiences follows in the literature review in chapter 2.

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[1]Tapestry Solutions, "Battle Command Sustainment Support System (BCS3)," http://www.tapestrysolutions.com/products/command--control/bcs3.aspx (accessed 16 March 2010).

[2]United States Army Combined Arms Support Command (CASCOM). "BCS3 Information Paper," https://www.cascom.lee.army.mil/private/esd/BCS3/BCS3index.htm (accessed 16 March 2010).

[3]Ibid.

[4]Ibid.

[5]Ibid.

[6]United States Army Combined Arms Support Command (CASCOM), "Approved BOIP," https://www.cascom.lee.army.mil/private/esd/BCS3/BCS3index.htm (accessed 18 March 2010).

CHAPTER 2

LITERATURE REVIEW

Introduction

Purpose

The purpose of this study is to understand some of the reasons for under utilization of the BCS3 in the field and to attempt to find out if additional training and familiarization of field grade logistics officers to the system will increase their desire to use BCS3 in future assignments. In the end, the goal of the study is to increase the exposure of field grade officers to BCS3 in the hope that their understanding of the capabilities of the system will lead to increased use of the BCS3 in the field. Increased use of the system benefits the army directly by getting more return from a tool that it has invested in but also indirectly by the man-hours saved due to the increased efficiency that BCS3 delivers.

Chapter Organization

Public writing to date on the BCS3 is minimal. Most writing on the subject is in some form of military publication. A review of literature will focus on six types of published literature written about the BCS3. First is an examination of reports from the Center for Army Lessons Learned (CALL). An evaluation of professional military journal articles follows with a focuses on the utilization of the BCS3. The third type covers research papers completed by School of Advanced Military Studies students. Doctrinal manuals such as Army Field Manuals will follow as the fourth type. Training materials such as instruction manuals, standard operating procedures, and pamphlets are

the fifth literature category. Finally, the sixth type of literature is information papers and reports written at the PMs office, BCS3 Section of the TCM of the Enterprise Systems Directorate Northrop Gruman, and Tapestry Solutions. The bulk of the literature review will focus on the CALL reports and military articles as these have the most relevance on the research topic. The intent of the literature review is to provide an understanding of the use of the BCS3 by units in the field and an explanation of system shortfalls as described by users and commanders.

Center for Army Lessons Learned

Numerous reports from CALL are available to Soldiers, leaders, and units that may provide assistance in preparing for deployment and to improve overall operational skills. The reports are observations from onsite visits to both Iraq and Afghanistan by CALL teams as well as interviews of key leaders within a command shortly after redeployment. The CALL mission is to collect and analyze data from a variety of current and historical sources, including Army operations and training events. Using these resources, CALL produces lessons for military commanders, staff, and students; while concurrently disseminating these lessons and other related research materials through a variety of print and electronic media.[1] These reports provide information to help units prepare to perform missions in areas that are not covered by standard Army doctrine. Much of the information falls in the category of tactics, techniques, and procedures; or observations, insights, and lessons. Tactics, Techniques, and Procedures and Observations, Insights, and Lessons incorporate real life issues such as differences in culture and geography, enemy tactics, and weather that deployed units face. A

chronological examination of CALL reports with a logistics focus provides data on the use of BCS3 by logistics units in both Iraq and Afghanistan.

Brigade Combat Team (BCT) S4 and Support Operations Officer Synchronization written by Major Theo Moore and Major Alanna Cook describes how most units at the Joint Readiness Training Center and in support of Operation Iraqi Freedom have communication difficulties between the Brigade Combat Team (BCT) S4 and the BSB SPO Section due to geographic displacement.[2] Moore and Cook think the BCS3 may be the primary logistics C2 tool when synchronized with MTS and BFT.[3] Much of the automation section of the article focuses on the purpose, function, and capabilities of the BCS3.[4] The authors purport that most units do not leverage their digital enablers to facilitate communication between sections or with subordinate units.[5] Nor is the BCS3 used to develop an LCOP for the BCT sustainment cell or the BSB.[6] Specifically, they attribute the trend to not utilize the BCS3 with a lack of familiarity with the system.[7] Using the BCS3‟s LCOP, displaced units can communicate by exchanging OPVIEWs and filters and sharing information via ABCS.

An undated Initial Impressions Report called “Integration of Modular Combat Service Support (CSS) units Operation Iraqi Freedom” centers on the operations of a Corps Support Group, a Corps Support Battalion (CSB), and a Motor Transportation Battalion during Operation Iraqi Freedom.[8] These units had only two BCS3 systems (which increased to six during the rotation) and no SIPR capability.[9] Units limited BCS3 use to validating MTS convoy data and its increased messaging capability. Units used the latter for historical analysis and investigative purposes, as the BCS3 preserves all message traffic whereas the MTS cache for message traffic is small and incoming traffic

erases prior traffic when the cache becomes full.[10] A recurring drawback identified in the article was the inability of the BCS3 to provide BFT data on Army and United States Marine Corps units. Vehicle visibility was in fact available in the BCS3 but not functional because BFT cannot display without SIPR connectivity. The most important insight of this report was the necessity to train leaders on the full functional range of the BCS3.[11] Limited use of the system at home station combined with personnel turnover created this shortfall.[12]

"The V Corp/Multi-National Corp–Iraq Initial Impressions Report" discusses the Multi-National Corp–Iraq (MNC-I) C4 staff's avoidance of the system thinking it was a tool beneficial only to lower echelon staff sections.[13] Although some of the junior staff valued what the BCS3 could bring to the operation, it was still not used for a number of reasons: system fielding occurred after arrival in theater; training shortfalls; and limited knowledge of system capabilities; lack of analytical and predictive capabilities; and failure to link with sister service or coalition force systems.[14] According to the article some staff members desired additional functionality in the BCS3 but the current capability makes the system relevant at the MNC-I level. The article stated that the Corps Support Command (COSCOM) level used the BCS3 to generate SA and a common operation picture at the BCT level, but did not provide any detail.[15] Some concerns of the article were the inability to merge data from BFT, MTS, and Global Transportation Network in one system and the inability to view the location of cargo by National Stock Number.[16] Comments like these clearly show that the individuals do not understand the capabilities of the BCS3 because the capability that they desire is available with the BCS3. Additionally, operators can perform these functions with minimal training.

A CALL IRR for the 25th Infantry Division (L) and 1st Cavalry Division from September 2007, "Observations from Modular Force Divisions in Operation Iraqi Freedom (OIF)" reported success with the BCS3 during MRXs but attributed success with the system to robust contractor support and good connectivity at the training site.[17] Prior to deployment no units habitually used the BCS3 in garrison, but some units trained with the system during the MRXs.[18] However, neither Division used the BCS3 to manage the LCOP.[19] Units from the Forward Support Company to division relied on LOGSTAT reports in various Microsoft (MS) product formats (Excel spreadsheets, PowerPoint slides), the Standard Army Maintenance System-Enhanced 026 report, Command Post of the Future (CPOF), and BFT to develop and manage the LCOP.[20] A variety of reasons caused units to seek other solutions in lieu of the BCS3 such as: lack of training; lack of connectivity [shortage of Very Small Aperture Terminal equipment]; the system was not user friendly, too difficult to use, and not intuitive. Division personnel thought when compared to MS Office software, the effort expended in inputting data into the BCS3 does not yield an equitable amount of management data, operational tempo is too fast to re-learn or become proficient on the BCS3, and it was too difficult to realign the task organization.[21] Finally, the article mentions that the MNC-I headquarters did not require divisional units to report via the BCS3.[22]

The *CAC DOTMILPF Issues Report* (May 2008) combines numerous reports, observations, and command directives on 32 recurring issues for units in Iraq and Afghanistan. The report describes capabilities of the BCS3 and discusses some observations from units that used the system in the field. Issues identified are warfighters not using the BCS3 to enhance the C2 and management of sustainment units in support of

operations.[23] In addition, the report examined the need for a comprehensive survey to determine the SA requirements of maneuver commanders and sustainment staff in modular HQ (BCT through corps) and the ability to comprehensively train with the BCS3 system in a pre-deployment environment.[24]

The 3rd Infantry Division (ID) staff did not utilize BCS3 for the LCOP as they found the software too slow. As a result, 3rd ID contracted for and developed a modified version of the Integrated Logistics Analysis Program to harvest logistics data which was then automated into a briefing format for division leaders.[25] The G4 relied on the SBE to manage commodities and provide the information because most of the units across the division did not utilize the BCS3 for commodity management.[26] Many units in the Division only used the BCS3 as a backup or in lieu of the MTS to monitor the ITV of convoys.[27]

The COSCOM incorporated the BCS3 in the battle rhythm at the corps distribution center but only in the non-secure mode.[28] The staff thought that the BCS3 improved the ability of the unit to manage supplies in commodity areas that lack an automated program such as Class I, and Class III but wanted further development of the software.[29] Desired capabilities were: assistance with projection and analysis of data, joint and coalition compatibility, and the elimination of the requirement to create, update, and maintain logistics information in MS Excel spreadsheets.[30] The TCM and PM incorporated many of these capabilities in the latest version of the BCS3 software with the addition of a robust LRT. Contrary to the comments in this report, feedback given by units during the Limited User Evaluation of the LRT recommended to limit projection capability to no more than 72 hours. Although compatibility with joint and coalition

systems is not feasible in the near future, the LRT is easily downloadable on any Department of Defense computer so units can use the application with sister service units. The LRT solves the third issue of eliminating use of MS Excel spreadsheets for LOGSTAT reporting because that is its primary purpose. COSCOM used the BCS3 in a very limited fashion primarily to validate previous MTS communications trails for referencing and archiving data, and only in the NIPR environment.[31] The report concludes that the BCS3 system has potential to improve sustainment C2 and to mitigate the execution gaps discussed in this paragraph. However, unwillingness or the inability to use the system eliminates utility of the BCS3 and increases the difficulty of sustainment C2.[32]

The final CALL collection report, from April 2009, titled *101st Sustainment Brigade Umbrella Week, 20-24 April 2009*, highlights activities of the unit deployed as the Joint Logistics command in Afghanistan in support of Operation Iraqi Freedom. 101st Sustainment Brigade, along with most units in Afghanistan, did not utilize BCS3.[33] Commodity managers in the SPO Section used Excel spreadsheets to manage requirements and distribution because they felt that there was not a single system that allows logistics staff officers to manage commodities and interface with other ABCS.[34] Execution of the LCOP by the 101st was on CPOF which requires manual input of all information consuming many man-hours daily.[35] The BCS3 was not used for its ITV capabilities either because host nation vehicles in sustainment convoys did not contain any type of Global Positioning System capability or RFID tags on their cargo containers.[36] Sustainment staff officers thought that the BCS3 brings no value to the fight and prefer using handmade worksheets to manage commodities.[37]Another misperception

is the incapability to transfer sustainment data from BCS3 to ABCS.[38] But, in fact, as one of the systems in the family of ABCS, the BCS3 has the ability to both publish and subscribe to Battle Command in order to give or receive data or images with all of the other ABCS systems.

The remaining CALL literature includes interviews and transcripts of Reverse-Collection and Analysis Team sessions with SBE commanders shortly after redeployment from Iraq. Colonel Mark Barbosa, Commander of the 7th SBE, thought that the BCS3 system is an expensive piece of equipment not effectively employed in the field. Specifically, Barbosa thinks that the BCS3 serves a limited role in sustainment and operational units due to a steep learning curve and lack of intuitive software.[39] As an example, if a BSB does not like the BCS3 the SBE commander cannot mandate use of the BCS3 because those units are now organic to the BCT and not subordinate to the Sustainment Brigade.[40] Barbosa also believes that the system and LCOP management requires operators of a higher grade and experience level than authorized.[41] While Barbosa may have valid concerns; recent software updates (i.e. the filter wizard, the LRT, and standard OPVIEWS) have eased the burden on operators. Additionally, increased system familiarity by senior NCOs, captains, and majors will allow them to manage operators more effectively further it alleviating these issues.

In the Reverse-Collection and Analysis Team Series titled *593rd Sustainment Brigade Western Iraq Lessons Learned,* the brigade SPO, LTC Lehman discusses the BCS3. He acknowledged that the amount of reports, PowerPoint charts, Excel spreadsheets, and emails required to harness commodity status information is overwhelming.[42] Toward the end of the deployment, the unit participated in the Limited

User Evaluation of the Web service client (which was later re-designated the LRT) with contractor support.[43] The test concentrated on Class I and water, Class III bulk, and Class V. The Limited User Evaluation made him an advocate of the system because it alleviated many challenges.[44]

Finally in a CALL commander interview, Colonel Terri O"Brien of the 55th SBE, noted that the command"s soldiers did conduct training on the BCS3 when the unit fielded the system; however, once deployed the 55th SB did not use the system in normal daily operations as envisioned by the Army.[45] Colonel O"Brien further mentions that commodity managers did not utilize the BCS3 to track supplies due to the timeliness of data to support normal daily operations and they thought the BCS3 did not offer the flexibility of standard MS products.[46] Unfortunately, the BCS3 training prior to deployment, was transportation focused and spent little time on the commodity management features of the system that the unit had the greatest need in supporting their mission.[47]

Professional Military Articles and Papers

Numerous articles discuss the use of or under utilization of the BCS3 by military units at many different echelons. The review is chronological to assist in the evaluation of issues over time.

"BCS3 Becomes the Heartbeat of ITV for Task Force Bastone and SDDC" by Mitch Chandran (Translog, Fall 2005) focuses on the initial use of the BCS3 by the Surface Deployment and Distribution Command to manage cargo tracking from Fort Campbell, Kentucky to Southwest Asia the first time that a division sized element employed the BCS3.[48] Chandram thinks that the BCS3 is relevant at the strategic level

and joint levels and has sufficient "drill down" functionality to identify specific container contents.[49] A concern mentioned was improper input to the RFID tags limiting the ability to view all of the details in a particular piece of cargo.[50]

Dialog that follows examines two articles by Colonel Mark W. Akin, which appeared in the March/April 2006 issue of *Army Logistician*. "1st COSCOM Total Asset Visibility in Iraq" and "Distribution Management in the 1st COSCOM" are mainly technical material covering the process, shortfalls regarding ITV, and possible solutions.[51] COSCOM established an LCOP and tactical ITV from CONUS to the customer via the BCS3.[52] Shortfalls identified include lack of standards for tagging cargo, a need for common visibility in tracking cargo movements, connectivity shortages between critical ITV systems, and a lack of flexibility to change cargo carriers while en-route.[53] An adequately trained logistics manager can resolve these issues through the BCS3. COSCOM used a fusion cell consisting of commodity managers and transportation experts linked to a BCT Tactical Assessment Cell to facilitate the flow of strategic and operational information directly to the BSB.[54] The BCS3 enabled the COSCOM to display the execution of distribution management to the TSC.[55] The article author thought COSCOM established an unprecedented level of SA, asset visibility, and C2 using the BCS3 as the baseline system to monitor transportation movement.[56]

Another article from *Army Logistician* titled "Improving Division and Brigade Logistics in the Modular Force" is by Colonel Guy C. Beougher who examines potential issues logisticians face due to modularity, specifically focusing on the competing logistics C2 systems for division operations.[57] Beougher discusses the multitude of logistics tracking and reporting tools available and how logisticians leverage these tools

and incorporate them into the BCT.[58] He recommends professional development and education for BCT XO‟s and DCO‟s on STAMIS‟s as well as logistics enablers such as BCS3.[59] This approach would empower the tactician with some advance logistics knowledge and compel logisticians in the BSB to expand their proficiency in all logistics areas.

"COSCOM Support of Task Force Katrina" written by Captain Ryan T. Tierney from the September/October 2006 *Army Logistician* spotlights the use of the BCS3 by the unit in coordination with the Louisiana National Guard and the Federal Emergency Management Agency. The 49th Movement Control Team managed the movement, control, and distribution of commodities, plus provided an LCOP to Federal Emergency Management Agency and state authorities in support of the humanitarian relief effort.[60] Use of the BCS3 enabled the 49th to improve the efficiency of distribution operations and the flow of commodities while reducing the cost of logistics operations.[61] Correlation of this article to the research question is the importance of managers understanding the capabilities of the BCS3 in order to support any variety of logistics mission across the globe in conjunction with sister services, interagency, and Non-Governmental agencies.

The March/April 2007 edition of *Army Logistician* contained an article called **"**Midnight Run" by Captain Michael J. Rainis which details the actions taken by a brigade movement control officer to pull the BCT out of a gunnery rotation at the Grafenwoehr Training Area in Germany for an immediate deployment.[62] During the movement from Grafenwoehr Training Area to Schweinfurt leaders at every level wanted to know the location of the Heavy Equipment Transporters.[63] Utilizing the BCS3 made this possible by displaying Defense Transportation Reporting and Control System

information in order to quickly provide the leadership with an accurate location status on the Heavy Equipment Transporters.[64] Logisticians had an opportunity to showcase the capabilities of the BCS3 during this mission while capturing and disseminating data efficiently to assist leaders in making informed decisions.[65]

"Why BCS3 „Doesn't Work‟" by Major Thomas E. Sachariason from the November/December 2007 issue of *Army Logistician* is a commentary that discusses utilization, problems, and basic functionality of the BCS3. Many of the views in this article reflect similar sentiments in regards to the BCS3 as the researcher and it specifically addresses the problem statement. Major Sachariason thinks that the system is under employed in light of the monetary investment by the Army because of a limited understanding of the system, its capabilities, and how it should be employed.[66] The most important feature of the BCS3, according to the article author, is the ability to provide a LCOP, yet he thinks that this is the least utilized feature.[67.] Problems that Sachariason sees with the system are: operator training, standardizing OPVIEWS, and a communications infrastructure that is insufficient to support BCS3 operations.[68] An issue with training described by the article author is that the proper individuals are not trained or familiar with the system to leverage its capabilities such as S3, S4, and SPO senior NCOs and officers as well as battle captains.[69]

Sachariason thinks that standard OPVIEWS will provide a consistent picture across a command, assist subordinate units in maintaining SA, and eliminate large data pushes.[70] Users can now select a unit and or duty position based OPVIEW when they begin a project although this OPVIEW will change over time due to mission specific filters. Sharing OPVIEWS remains a capability but this does not reduce data pushes.

Sachariason‟s thinks that the bandwidth is usually insufficient to support the BCS3 and that a decision to use the system on either SIPR or NIPR is necessary.[71] Although the BCS3 does not require a large amount of bandwidth it remains an issue while deployed. Bandwidth is not much of a concern most of the time in areas such as Kuwait and Iraq due to the availability of the Joint Network Node. However, bandwidth remains a major obstacle in Afghanistan. With the Army‟s focus and funding now shifting to Afghanistan correction of equipment shortages such as Joint Network Node should occur and resolve the bandwidth issue in that area. The study opposes Sachariason‟s thought of choosing between NIPR and SIPR on the BCS3 because this ability to use both methods adds versatility to the system. For example, when there are connectivity issues on SIPR the BCS3 will still operate on NIPR and vice versa. The only service not available on NIPR is the BFT feed, which may not be relevant depending on the mission and the unit tracked.

"BCS3: Getting the Most Out of a Strategic Sustainment Tool" by Lieutenant Colonel S. Eric Stewart from the September/October edition of *Army Logistician* explains the application of the BCS3 capabilities by the Resources and Sustainment Directorate of the MNC-I. At MNC-I the BCS3 provided or supported the LCOP, ITV of private security convoys, the development of commercial railroad use in Iraq, the expansion of Umm Qasr port operations, distribution of cargo through the Jordon and Turkey border crossings, evaluation of new lines of communication, and determination of optimal interrogator locations.[72] Strategic goals supported by these initiatives include: improving the transportation infrastructure in Iraq, increasing distribution efficiency, and ensuring a multitude of lines of communication are available.[73] MNC-I also used the BCS3 to

analyze trends in the distribution system and develop initiatives to focus logisticians on providing efficient sustainment support to customer units.[74] Stewart discussed the inability to integrate BCS3 with joint systems and a concern about data integrity if subordinate units do not understand the capabilities or have the discipline to fully integrate the system.[75] The advent of the LRT and system sharing alleviates the joint integration issue. Subordinate unit under-utilization can only be fixed by mandating the use of the BCS3 within the command.

Research Papers

The next literature group is research papers by students attending the CGSC. All of the research papers are monographs written by students while they attended the School of Advanced Military Studies. While all four had information that assisted the researcher to close gaps and validate information, only two had information relevant to the problem statement of this study. The final research paper is the most important of the group as it studies the BCS3 directly so the depth of this review exceeds the others.

"Army Battlefield Distribution Through the Lens of Operation Iraqi Freedom: Logistical Failures and the Way Ahead" written by MAJ Eric P. Shirley during the 2004-2005 academic year is the first research paper reviewed. Due to the age of this monograph, some of the concerns are no longer valid but are worth mentioning to validate some earlier mentioned historical issues. Shirley identified that the limited early fielding of technological enablers (i.e. RFID, the BCS3, and MTS) led to doctrinal and training shortfalls and, consequently, a heavy reliance on contractor support.[76] Although at the time that Shirley wrote his paper the BCS3 was taking over the role as the logistics system of the ABCS family, there was no formal program of instruction for distribution

managers.[77] Today, five years later, there are numerous training opportunities on the BCS3 but all training programs remain focused on basic operator skills and information briefs for the senior leadership of a unit.

"The Battle Command Sustainment Support System: The Army"s Command and Control System for Logistics" is a monograph by Major Thomas E. Sachariason from the academic year 2008-2009 that covers some of the same concerns as this study. Much of the paper discusses Army transformation, ABCS, the new program vetting process, the CASCOM analysis of the BCS3, and identifies the costs associated with operating the system.[78] Additionally, Sachariason presents a strong argument for the BCS3 as the optimal solution but his premise contains information similar to the introduction chapter of this study. His paper focuses on the acceptance and use of the BCS3, successful system implementation, and recommendations for the BCS3 program sections.[79]

Sachariason"s acceptance and use of the BCS3 research used videotaped interviews of 15 recently redeployed units that are available on the Sustainment Knowledge Network.[80] Of the 15 units only three had positive remarks for the BCS3 and two of the positive remarks came from observer/controllers from training centers.[81] Negative remarks included the BCS3 was too difficult to use, not intuitive, contained latent data, and the atrophy of training proficiency.[82]

Two vignettes depicted how other automation systems overcame obstacles to become successful new technological enablers. These vignettes show how senior officers supporting use of a system encourages use of the system in the field. The first vignette covered the positive use of the Joint Deployment and Logistics Model as a LCOP for the 3rd COSCOM due to the mandate given by BG Charles Fletcher the commanding general

at the time.[83] With minimal formal training, the subordinate units adapted to the Joint Deployment and Logistics Model as the mandate caused a cultural change in overall logistics C2 management.[84] Similarly, the second vignette covered the implementation of CPOF as the division COP. MG Chiarelli, the 1st Cavalry Division Commanding General, was adamant about implementing CPOF.[85] Facing limited user acceptance, MG Chiarelli insisted operators use the CPOF, which ultimately drove improvements in the software. The CPOF became an Army program of record within the ABCS and is now the primary system used for the COP in Operation Iraqi Freedom.[86] Both of these instances highlight an important factor in facilitating the use of a new technology and change in general. Strong backing by a senior commander makes the likelihood of successful system implementation much greater.

Sachariason uses the force management domains of Doctrine, Organization, Training, Material, Infrastructure, Leadership, Personnel, and Facilities as the basis for his recommendations to improve the BCS3. Some elements of Doctrine, Organization, Training, Material, Infrastructure, Leadership, Personnel, and Facilities have only short mentions so the review will only cover elements Sachariason covered in depth. Under the personnel domain, Sachriason contends that there are no significant personnel issues but argues for funding additional BCS3 FSE contracts.[87] While funding of additional contracted FSEs may be a good short term solution the study argues that the long term goal should be to eliminate the need for BCS3 contractor support thru improved software and increased training and familiarization with the BCS3 for both operators and managers.

Within the Training domain the major points cover: use of the BCS3 in garrison, integration of the BCS3 into the training plan, incorporated home station training, training validation during field training exercises, command post exercises, and capstone training events such as a pre-deployment MRX. A point of view expressed by the writer is leaders must creatively design ways to use the BCS3 to support daily operations during non-deployed periods in the garrison environment so they can hone their skills and operators can remain competent on the system.[88] This "walk-crawl-run," approach will assist unit members to become familiar with the BCS3, gain confidence in their BCS3 abilities, and foster a cultural shift to breed change in processes and procedures.

Key points of Sachariason‟s material discussion include software updates to make the BCS3 more intuitive, easier to use, and more capable at every echelon. Sachariason's points are valid but even if his material solutions occur additional steps are necessary. The BCS3 must continue to adapt along with other rapidly advancing technologies despite the bureaucratic difficulties of improving technological solutions in order to meet the needs of logistics organizations.[89] Recent software upgrades are a major step toward this goal along with further improvements currently in progress. Unfortunately, software blocking will continue to impede the ABCSs from changing rapidly. Creating a comprehensive plan to critically examine the new software and assess user acceptance is necessary, according to the writer, to develop future improvements to the BCS3.[90] While this is a correct assessment, there already is a multifaceted effort to collect data from the field for system improvements. Gathered information comes from the TCM embedded officer reports, CALL Reverse-Collection and Analysis Team sessions, field user evaluations, helpdesk entries, training events such as MRXs and Command Post

Exercises, and from service schools. TCM personnel continually gather and analyze such data and the TCM recommends upgrades to the PM for BCS3 in the Functional Requirements Document. The PM then guides the contractor in generating new or improved capabilities.

Leadership is the final domain of Doctrine, Organization, Training, Material, Infrastructure, Leadership, Personnel, and Facilities covered and its lone focal point is senior leaders mandating the use of the BCS3. Requiring the use of the system will increase motivation for subordinates to familiarize themselves with, and recommend improvements to the system.[91] In turn, mandating use of the BCS3 will also influence positive changes to education, training, and materiel.[92] As the BCS3 is a logistics system Sachariason thinks the CASCOM commander should not only emphasize utilization of the system but also ensure that Army commanders understand its capabilities.[93] While the researcher agrees with Sachariason, a cooperative backing of the BCS3 by the CASCOM commander and the Army G4 is more desirable. Additionally, an effort to connect with senior commanders and staff officers is necessary not only to gain their support but also to embrace use of the BCS3 and to discourage blind intolerance of the system. The trickledown effect will help to reduce under utilization based on system ignorance. An additional item of note is the Army G4 backs the LRT as the LOGSTAT system for the Army. A final item mentioned is the employment of teams at major training exercises and deployed locations to assess user acceptance of the BCS3 and to gain knowledge on software issues at the operator level.[94] CASCOM attaches officer embeds with most deploying TSCs and Expeditionary Sustainment Command. At times Division and Sustainment Brigades also have this relationship although personnel shortages have

limited the program at these echelons in the past few years. Additionally, embed officers frequently visit, assist and collect data from subordinate units of the supported organization. Any unit that requests assistance for training exercises will receive support in the form of a TCM BCS3 combat development officer, DA Civilian, or contractor. In all of these situations, the TCM representative not only provides support but also solicits feedback to incorporate into a trip report that the TCM BCS3 and CASCOM commander review.

Doctrine, Instructional Materials, Standard Operating Procedures, Information Papers, and Reports

Due to the nature of their contributions to the study, a combination of the remaining literature types concludes the review. Significant contribution by these literature types were in the introduction chapter instead of directly answering the primary research question. Verification of information used in the introduction came from instruction materials and the TCM BCS3 standard operating procedures. Information papers and reports are the source of much of the material used in the system overview to describe functions, capabilities, interaction with other systems or databases, and application of the system in the field. It is obvious that these literature groups are vital to the reader in order to understand background information of the BCS3 but not necessary to cover in depth in this review.

Summary

A substantial amount of literature written on the use of the BCS3 by military personnel was critical to this study. Reports, articles, and research papers cover a diverse group of organizations at different echelons across the Army. Study of this literature

helps clarify issues and concerns documented by the soldiers and units that have employed the BCS3. Compiling and analyzing this information is critical to assess past and current use of the system and provide possible solutions to the problems that plague the BCS3. After reviewing the literature, it is apparent that a multitude of initiatives is necessary in order to overcome past shortcomings of the system. The literature review began the research process that will continue in the following research methodology chapter.

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[2]MAJ Theo Moore and MAJ Alanna Cook, *Brigade Combat Team (BCT) S4 and Support Operations Officer Synchronization* (Ft Leavenworth, KS: Center For Army Lessons Learned, year), 1.

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[4]Ibid., 8.

[5]Ibid., 7.

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[8]CALL, *Integration of modular combat service support (CSS) units Operation Iraqi Freedom* (Ft Hood, TX: Government Printing Office, 2007), 1.

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[10]Ibid., 48.

[11]Ibid., 8.

[12]Ibid., 48.

[13]Samuel R. Young, "V Corps/Multi-National Corps–Iraq," Initial Impressions Report (Campbell Barracks, Heidelberg, Germany, April 2007), 174.

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[15]Ibid.

[16]Ibid., 191-192.

[17]Mike Stark, Observations from Modular Force Divisions in Operation Iraqi Freedom (OIF), 26 September 2007, 48.

[18]Ibid.

[19]Ibid., 47.

[20]Ibid.

[21]Ibid., 48.

[22]Ibid.

[23]LTC Gregg A. Taylor, *CAC DOTMILPF Issues Report* (Ft Leavenworth, KS: Center for Army Lessons Learned, May 2008), 64.

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[26]Ibid.

[27]Ibid.

[28]Ibid., 66.

[29]Ibid.

[30]Ibid.

[31]Ibid.

[32]Ibid.

[33]LTC Gregg A. Taylor, *101st Sustainment Brigade Umbrella Week, 20-24 April 2009* (Ft Leavenworth, KS: Center For Army Lessons Learned, 2009), 18.

[34]Ibid.

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[36]Ibid., 18.

[37]Ibid.

[38]Ibid., 19.

[39]COL Mark Barbosa, Commander, 7th Sustainment Brigade in Iraq, Interview by LTC Tony Skubi, Commander, 15 October 2008, 5.

[40]Ibid.

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[42]Ibid. *593rd Sustainment Brigade Western Iraq Lessons Learned*, 34.

[43]Ibid., 58.

[44]Ibid.

[45]COL Terri O'Brien, Commander, 55th Sustainment Brigade, Joint Base Balad, Iraq. Interview by LTC Tony Skubi, Commander, 11 October 2008, 6.

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[47]Ibid.

[48]Mitch Chandran, "BCS3 Becomes the Heartbeat of ITV for Task Force Bastone and SDDC," *Journal of Military Transportation Management* (Fall 2005): 13.

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[57]Colonel Guy C Beougher, "Improving Division and Brigade Logistics in the Modular Force," *Army Logistician* 38, no. 3 (May/June 2006): 11.

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[63]Ibid., 20.

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[65]Ibid., 21.

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[80]Ibid., 32.

[81]Ibid., 33.

[82]Ibid.

[83]Ibid., 38.

[84]Ibid.

[85]Ibid., 39.

[86]Ibid., 40.

[87]Ibid., 43.

[88]Ibid., 46.

[89]Ibid., 47.

[90]Ibid., 43.

[91]Ibid.

[92]Ibid.

[93]Ibid., 44.

[94]Ibid.

CHAPTER 3

METHODOLOGY

Introduction

Purpose

The purpose of this study is to understand some of the reasons for under utilization of the BCS3 in the field and to attempt to find out if additional training and familiarization of field grade logistics officers to the system will increase their desire to use BCS3 in future assignments. In the end, the goal of the study is to increase the exposure of field grade officers to BCS3 in the hope that their understanding of the capabilities of the system will lead to increased use of the BCS3 in the field. Increased use of the system benefits the army directly by getting more return from a tool that it has invested in but also indirectly by the man-hours saved due to the increased efficiency that BCS3 delivers.

Chapter Organization

Material in this chapter addresses the methodology used by the researcher to answer the primary and secondary research questions in depth. It begins with a discussion of the steps taken by the researcher to obtain information required to address all of the research questions. A layout of the criteria developed and used to determine the feasibility and suitability of the research method, the relevance of any examples used, and the credibility of sources follows the discussion of information collection. The third section discusses details of a survey conducted by the researcher such as protections for human subjects, the sampling method, validity, reliability of measures, analysis of survey

data, and standards for significance of the survey. Finally, the chapter concludes with a summary of the research methodology

Information Collection

In order to accumulate enough information for valid analysis the research involved a collection of data from a multitude of information sources. Research fell into three distinct categories, one of which contains a few subcategories. The stand-alone category was a survey that directly addressed all of the research questions. Additional discussion concerning the conduct of the survey follows in the next section of this chapter.

Additional research material was from the literature review and included relevant information in at least one of three areas: (1) general opinions of the system or its application, (2) utilization of the BCS3 in the field, or (3) some type of analysis of the system. Some literature did not meet the data collection criteria but remained to verify background information. As the goal of this study is to find as many answers to the multiple research questions as possible a collection of several literature types were necessary. The literature categories follow: CALL reports and interviews, professional military magazines, and research papers.

The final source of information is the researcher‟s personal experience in three capacities. First, for the past 11 years I have served as a military logistician at multiple echelons and logistics positions while in garrison and in all the different phases of deployment. I gained a wide range of logistical knowledge by directly managing maintenance, supply, transportation, and ammunition operations. Such experience is

extremely relevant because it relates to how logisticians conduct operations with, and without, the BCS3.

For two and a half years, the researcher was a combat development officer for the BCS3 while assigned to the Enterprise Systems Directorate of CASCOM. In that position, the author reported to the TCM for BCS3. The primary responsibility of this position is to get feedback on the system from soldiers in the field and to recommend changes to future versions of the software. The researcher is a graduate of the Field Service Engineer University administered by the primary BCS3 software developer Tapestry Solutions. Field Service Engineer University prepares new Tapestry Solution employees to assist units with training, employment, and execution of the BCS3. While assigned to the position the researcher embedded three times with units deployed to both Iraq and Afghanistan and supported several division and corps level exercises. A BCS3 embed officer is responsible for the development and execution of BCS3 operations in all user courses, training exercises, and deployment plans for the supported unit. While deployed, the embed officer analyzes requirements, integrates BCS3 into the unit, provides training, and recommends courses of action to assist the unit in streamlining operations.

Additionally, the researcher served as the Officer in Charge during the Limited User Evaluation of the LRT and then evaluated the final product during government acceptance testing. Ultimately, the Limited User Evaluation provided critical input from deployed soldiers to improve the LRT, which is now available in the latest version of the software. These experiences are crucial to understanding the capabilities and shortfalls of the system regarding training, user acceptance, management, and utilization of the BCS3

in the field. Finally, as an ILE student, the researcher discussed technological enablers such as the BCS3 and the CPOF with fellow logisticians and classmates.

Survey

The study incorporates a survey of logistics officers currently attending ILE at the CGSC. The questions covered the officers‟ experiences with not only the BCS3 but also traditional systems such as STAMIS and ITV tracking systems. Respondents provided input regarding knowledge and experience related to the capabilities, training, utilization, and management of the BCS3. Additional survey questions inquired about respondents‟ intent to take the A433 BCS3 elective, use of the BCS3 at ILE and evaluation of experience with the system at ILE. The survey was anonymous because respondents did not provide any personal information. Sampling was of 192 Force Sustainment students attending the 2010-01 academic year of ILE and administered by the CGSC Quality Assurance office. At no point does the researcher know the identity of or interface with the respondents. An in-depth explanation of overall methodology follows.

Investigatory Process

As discussed earlier in the information collection section there is a wide variety of sources required to gain adequate data for analysis. In order to answer the primary research question it is necessary to answer all of the secondary questions. Therefore, the survey includes all of the secondary questions with additional supporting questions, if required. The survey questions asked respondents about their logistics experience with the BCS3 use and management information and their opinions of the system. In conjunction with the researcher‟s experience, the survey provided a template for

analyzing how the target audience thinks about and understands the BCS3. The literature provides real world examples of positive or negative experiences utilizing, or attempting to use, the BCS3. Comparing the analysis of the survey responses with the literature illuminates the real or perceived issues that reduce the use of the BCS3 in the field. Additional analysis focuses on the ability of logistics officers to manage BCS3 operators, the value of current BCS3 training, the current BCS3 pilot, and future of BCS3 at ILE. Some of the analysis incorporates the experiences of the researcher to tie all of the information together. Finally, the researcher will make recommendations regarding the leveraging of curriculum at ILE to enhance unit implementation of the BCS3 in future assignments.

Summary

This chapter covered the methodology used for this study from information gathering techniques through analysis. The general design of this study focused on a survey, a literature review, and the researcher‟s personal experiences. Survey responses addressed all of the secondary questions to facilitate answering the primary research question. The literature reviewed surfaced individual and unit experience with BCS3 in the field. The detailed analysis follows.

CHAPTER 4

ANALYSIS

Introduction

Purpose

The purpose of this study is to understand some of the reasons for under utilization of the BCS3 in the field and to attempt to find out if additional training and familiarization of field grade logistics officers to the system will increase their desire to use BCS3 in future assignments. In the end, the goal of the study is to increase the exposure of field grade officers to BCS3 in the hope that their understanding of the capabilities of the system will lead to increased use of BCS3 in the field. Increased use of the system benefits the army directly by getting more return from the tool that it has invested in but also indirectly by the man-hours saved due to the increased efficiency that BCS3 delivers.

Chapter Organization

Focus of this chapter is on the analysis of all the research questions to determine whether the study adequately addressed the problem statement. The first section discusses statistical data from the research starting with each individual secondary question prior to addressing the primary research question. Following a reiteration of each research question is a discussion of the survey data that incorporates pertinent data from the literature review and researcher experience to answer that question. In most cases, a table provides additional data to support the written comments. Finally, a summary of the chapter leads toward a conclusion.

Background Data

This section assists in understanding the experience of the survey respondents. Some of the data is purely informational such as rank, service, or branch. Additional statistics provide background data to connect the respondents‟ training, familiarization, and BCS3 experience.

The survey targeted only the 145 Army Logistics majors in ILE class 2010-01 and resulted in 33 respondents. This equals to a 23 percent response rate that is on par with the CGSC survey response average. Although 33 respondents is not a high number for research, it is adequate for the scope of this study and in line with CGSC quality assurance and quality control standards for a Masters of Military Arts and Science thesis. All of these respondents were Army Majors. Over three quarters of the respondents have very little, some, or moderate experience using the BCS3 while only one listed extensive experience and six had no experience. Previous experience with the BCS3 is important due to the four-hour training program planned for future classes on the system. Four hours of training would only help as a refresher for officers that have previous BCS3 experience. Basic branch representation was nearly even with 12 Quartermaster, 11 Ordnance, and 10 Transportation officers. A query of specific logistics experience found over 60 percent have a maintenance background, 30 percent ran a Supply Support Activity, 27 percent have Petroleum, Oils and Lubricants experience, 21 percent have an ammunition background, and 6 percent served as Division Transportation Officers‟. Participants selected all areas of experience so may have selected more than one response causing the percentage to exceed 100 percent.

Just over one third of respondents used the Standard Army Ammunition System-Modernized while approximately two thirds have experience with Property Book Unit Supply Enhanced, Standard Army Retail Supply System, and Standard Army Maintenance System. Of the different ITV systems MTS experience was highest at 22 officers followed by BFT at 20, BCS3 with 15, Force XXI Battle Command Brigade and Below had 13, Joint Total Asset Visibility with 8, Defense Transportation Reporting and Control System had 6, and 4 had experience with Global Data Monitoring System.

Findings

Secondary Research Questions

Will the use of an automated LRT save logistics officers enough time performing duties to increase their willingness to use the BCS3?

Several questions focused on the respondents‟ use of LOGSTAT spreadsheets to assess the time required to accomplish this task during their most recent deployment. There were 30 respondents that had some type of experience reporting in this manner. Survey questions related to the time required by the participants to create, edit, review, or adjust spreadsheets daily. Respondents who took less than ten minutes to accomplish these tasks were 40 percent to create spreadsheets, 30 percent to edit, 20 percent reviewing, and 30 percent adjusting spreadsheets. In all four categories, at least 50 percent of respondents indicated that it took them ten to thirty minutes to complete the tasks. Remaining responses selected over 30 minutes to accomplish the tasks at the following percentages: 20 percent for creating and editing spreadsheets, 23 percent for reviewing them, and 17 percent to adjust spreadsheets. table 1 depicts the specific responses by time and category.

Table 1. Time required daily to manage LOGSTAT spreadsheets as reported by survey respondents

Time needed daily to accomplish task	Creating	Editing	Reviewing	Adjusting	Time saved with LRT
Less than 10 Minutes	40%	30%	20%	30%	27%
10-20 minutes	13%	27%	27%	40%	27%
20-30 minutes	27%	23%	30%	13%	7%
30-60 minutes	10%	7%	7%	7%	13%
More than an hour	10%	13%	17%	10%	27%

Source: Created by author.

The goal of these questions was to assess the impact that the LRT has on LOGSTAT reporting procedures. Over half of the respondents think that use of an LRT type application will save 20 minutes or less, while 27 percent think that it would save over an hour. Therefore, some field grade officers think that BCS3‟s LRT feature saves time in their daily reporting requirements. However, because the majority of respondents think there is a 20-minute or less of time savings with the LRT, ultimately the LRT provides little impact. A shortfall of the survey was the omission of a no time saved option. Over 73 percent of respondents selected, a savings of more than 10 minutes so the research remains valid but the remaining 27 percent may have selected a no time saved option if it was available. An important point in the discussion of the following question is that none of the respondents had any experience with the LRT. If this was the case, it may have had an effect on their responses to the last survey question in this section.

Do logistics officers attending ILE at CGSC have knowledge of the numerous functions available in the BCS3?

Surprisingly, four logistics officers (12 percent) did not know about the BCS3. Two survey questions addressed ILE students‟ knowledge of 12 functions available in the BCS3. Participants identified functions they were aware of and separately indicated those capabilities they used as an operator or manager. Answer options follow:

1. Creating, editing, or filtering OPVIEWS
2. ITV of vehicles, equipment, or supplies
3. Reception, Staging, Onward-Movement & Integration
4. STAMIS reporting
5. The LRT
6. UTO
7. Commanders Critical Information Requirements
8. TIL
9. Combat Power
10. Create, edit, or status of a Main Supply Route
11. The Briefing tool
12. Subscribing or publishing to the ABCS

Participants selected all of the capabilities that apply to them. All of the capabilities had at least six responses by participants for the question asking what BCS3 capabilities they knew. Well know functions were Main Supply Route that had 27 responses, 23 knew of the briefing tool, 21 were familiar with ITV, and 20 were aware of OPVIEWS. Several functions were less well known. For instance, only six respondents knew of the Commanders Critical Information Requirements capability, eight were aware of ABCS communication, and 11 knew about Reception, Staging, Onward-Movement &

Integration. Results for the BCS3 capabilities used by respondents question were as high as 22 responses for the LRT, 21 responses each for ITV and combat power, and 20 participants used OPVIEWS. Meanwhile, no participants used the Commanders Critical Information Requirements capability, the TIL, or interacted with the ABCS. Full results for both of these questions are available in table 2

Table 2. Survey responses to the BCS3 capabilities questions

BCS3 Capability	Capabilities that survey respondents were aware of	Capabilities that survey respondent utilized or managed operator use
OPVIEWS	20	5
ITV	21	7
RSOI	11	1
Stamis Reporting	15	1
LRT	22	0
UTO	16	2
CCIR	6	0
TIL	16	0
Combat Power	21	2
MSR	27	3
Briefing tool	23	7
ABCS interface	8	0

Source: Created by author.

An additional criterion to analyze familiarization with the BCS3 is previous experience with the system. Four questions on the survey related to experience with the BCS3. The first question asked participants how often they utilized the BCS3 during their last deployment while the second question asked how often their subordinates used the

system. Possible responses were (1) Daily, (2) Weekly, (3) A few times, (4) Never, and (5) I do not know. In both categories, over 50 percent of respondents never used the system during their last deployment. The third and fourth questions asked whether participants avoided utilizing the BCS3, and why. Of the 33 participants, 8 answered that they avoided using the BCS3, yet there were 45 responses to why they avoided using the system. Complete results of these questions follow in tables 3 and 4.

Table 3. Use of the BCS3 by participants and their subordinates

	Participants use of the BCS3 on last deployment	**Participants subordinates use of the BCS3 on last deployment**
Daily	3	6
Weekly	3	1
A few times	5	2
Never	22	17
I do not know	0	7

Source: Created by author.

Table 4. Reasons participants avoided use of the BCS3

Reason for avoiding use of the BCS3	**Responses**
Lack of training	6
Command Influence	5
Unfamiliarity	6
Powerpoint relience	2
Excel relience	3
Did not need BCS3	5
Do not like BCS3	4
Other	14

Source: Created by author.

While most respondents were familiar with the common functions in the BCS3, many did not utilize these capabilities in the field. Respondent"s knowledge of capabilities does not translate into understanding how these capabilities can assist with managing operations, or overcoming training shortfalls. Research indicates a direct correlation between use of specific capabilities and utilization of the BCS3 on the last deployment. Results showed a significant difference between capabilities the participants knew, and capabilities that they utilized. There were 206 responses made in the capabilities known category while there were only 28 responses in the capabilities used category. It is not surprising that 22 respondents never used the BCS3 during their last deployment because of the limited responses to the capabilities utilization question. The briefing tool, ITV, and OPVIEWS were the only capabilities used by most of the 11 respondents that used the BCS3 on their last deployment.

Unfortunately, there was no follow up question asking participants why they did not use many of the other capabilities of the BCS3. Without such a question, the study cannot determine why there was limited use of many BCS3 capabilities. While respondents know the capabilities available in the BCS3 it is clear that this knowledge does not lead to increased use of the system in the field.

Can logistics officers attending ILE at CGSC manage BCS3 operators on the system?

Four survey questions asked participants about their experiences as managers of BCS3 operators. Specifically, their ability to obtain reports, ITV, OPVIEWS, and LOGSTAT information from operators. Responses were on the following scale: (1) Strongly agree, (2) Agree, (3) Neither agree nor disagree, (4) Disagree and (5)

strongly disagree. Most of the respondents selected agree, or neither agree nor disagree in four of the capability categories. Only a few respondents selected the strongly agree or strongly disagree options. Across all four questions, at least 38 percent of respondents chose "agree" while no more than 28 percent selected the disagree selections. Full results of the responses to these questions are in table 5.

Table 5. Responses to BCS3 management questions

As a manager I am able to explain to an operator my requirements for:				
	Reports	**ITV**	**OPVIEWS**	**LOGSTAT**
Strongly Agree	7%	10%	14%	7%
Agree	34%	28%	41%	41%
Neither agree or disagree	34%	34%	24%	31%
Disagree	21%	21%	17%	21%
Strongly disagree	3%	7%	3%	0%

Source: Created by author.

Based on the responses, it is clear that more participants think they can fulfill BCS3 management requirements by directing operators than think that they cannot. Questions about the validity of these responses arise when comparing them to responses to the previous secondary question. Even though many respondents have no experience with a capability as an operator or manager, they still think that they can manage operators on that capability. For example, 41 percent of respondents thought they could effectively manage STAMIS operators, yet only one survey participant used the BCS3 for this capability. Similarly, 48 percent of respondents claimed they could manage LOGSTAT data on the BCS3, an ability that requires familiarity with two additional

functions, the LRT, and combat power. However, none of the respondents were familiar with the LRT, while only two survey participants claimed they understand the combat power function. Survey responses suggest that participants think that they can manage BCS3 operators based on their experience managing this data from resources other than BCS3. Responses indicate many participants are confident that they can explain their requirements to operators but most would not be able to obtain the data on their own or know how the result would appear in the BCS3. Additionally, participants think they could manage operators in areas that the only possible place to gain experience is the BCS3. This is seen for OPVIEWS where 56 percent of participants selected an agree option while only 15 percent have any experience with OPVIEWS.

Have logistics officers attending ILE at CGSC received any BCS3 training? If so, was the training adequate to enable them to run the system and manage BCS3 operators?

The survey contained three training related questions; each question focused on one of three different training related topics. First, a question asked participants to list all of the types of BCS3 training attended from these options: (1) 40 hour operators course, (2) New Equipment Training, (3) over the shoulder training (Subject Matter Expert assisted), (4) On the job training (self training) (5) other (such as service school training), and(6) none. Forty-one responses made it clear that some participants had multiple sources of training. Most training types registered similar responses falling in the eight to ten ranges with the exception of New Equipment Training with two. Only four of the respondents had no training on the BCS3.

A second question asked participants if their operators received training on the BCS3. Of the 32 participants that responded to the question 38 percent selected yes and 3

percent said no. Remaining responses were I do not know at 16 percent and I did not have any BCS3 operators at 44 percent.

The final question asked participants if they received enough training to employ the system. Only 17 percent of respondents replied yes and 83 percent responded no. Details of the training responses are in tables 6 and 7.

Table 6. Type of training received and operator training

Type of training received	
40 hour course	9
NET	2
Over the shoulder	8
OJT	8
Other	10
None	4

Did your BCS operators receive any training			
Yes			12
No			1
I do not know			5
I did not have any operators			14

Source: Created by author.

Fortunately, seven of the survey respondents took part in the training and employment of the BCS3 during exercises conducted at ILE. Due to their unique experience, the final training question also depicts only the individuals that participated in the use of BCS3 in ILE exercises. Of these participants, two respondents think that they received sufficient training, four respondents did not, and one participant did not answer the question. An additional note of significance is during the literature review a comment was found stating that two majors took the BCS3 elective course at ILE but thought it was a poor course because it is heavily over-coached causing them to not really

learn the system.[1] While discussing the BCS3 elective with peers in class 10-01 the researcher found that most students had the same thoughts on the course.

Table 7. Assessment of received training

Did you receive enough training to employ the BCS3 properly?		
	All participants	**Participants that utilized the BCS3 during ILE exercises**
Yes	17%	33%
No	83%	67%

Source: Created by author.

The huge majority (88 percent) of participants experienced some degree of training on the BCS3 with only 12 percent of respondents selecting the no training option. A shortfall of the question was the omission of an option for service school training. It is clear that most participants think that received training was insufficient regardless of the source, because 83 percent of the respondents think that they have not received enough training to employ the system properly.

Primary Research Question

The primary research question was: Would mandating that the BCS3 training and certification for Functional Area 90 students during ILE at the CGSC increase their willingness to use the system in the field?

Seven survey questions assessed how proper training and familiarization influences the willingness of ILE students to utilize the BCS3. Five of these questions directly queried the affect of training on their willingness to utilize the BCS3 based on:

(1) adequate training, (2) familiarity, (3) understanding capabilities, (4) decreased reliance on Power Point, and 5) decreased reliance on Excel. All of these questions used the following scale: (1) strongly agree, (2) agree, (3) neither agree nor disagree, (4) disagree, and (5) strongly disagree. At least 55 percent of respondents selected either strongly agree or agree for all five questions. On the opposite end of the scale, no more than 13 percent of respondents selected strongly disagree or disagree. Complete results of the five questions are in table 8.

Table 8. Willingness to increase utilization of the BCS3

I would utilize the BCS3 more with:					
	Adequte training	**Familiarization**	**Understanding of capabilities**	**Decreased Powerpoint reliance**	**Decreased Excel reliance**
Strongly agree	29%	29%	35%	29%	32%
Agree	35%	35%	35%	26%	32%
Neither agree or disagree	23%	26%	26%	39%	29%
Disagree	10%	6%	3%	6%	3%
Strongly disagree	3%	3%	0%	0%	3%

Source: Created by author.

These were the most important questions of the survey because they all relate to directly answering the primary research question. Results clearly support an affirmative response to the primary research question. Responses indicate that adequate training that provides understanding of the BCS3 capabilities followed by hands on familiarization with the system during ILE exercises would have a dramatic impact on the willingness of

ILE logistics officers to utilize the system. In each of these three areas, 65 to 70 percent of respondents selected an agree option. Additionally, the results of decreasing reliance on PowerPoint and Excel actually support the primary research question contrary to the study‟s initial assessment. Inclusion of these questions was due to an assumption of the study that military officers tend to rely on MS office tools and are reluctant to change this practice. With 55 and 64 percent of participants agreeing, that they would use the BCS3 more if it decreases their reliance on the MS office products it appears that the participants are willing to change this practice.

Another survey question asked participants if they planned to take the BCS3 based A433 elective. Of the 32 total responses, there were 23 individuals or 72 percent who intended to take the course. The final survey question asked the seven participants in the small groups that piloted BCS3 during the ILE exercises their opinion on future implementation of the program. Most respondents think that the program should expand in some way. Over 75 percent of respondents backed expansion of the program while only 14 percent selected eliminate the program. A shortfall of the survey was not including an option to input the reason that participants selected eliminate the program. This may have provided feedback to improve the program in the future. Table 9 includes complete results of this question.

Table 9. Opinion on use of the BCS3 for future ILE classes

What is your opinion on the use of the BCS3 during exercises for future ILE classes	
Continue the program as is	10%
Expand the program to more groups	41%
Expand the program to all groups	34%
Eliminate the program	14%

Source: Created by author.

Responses to these questions show that ILE logistics students would welcome additional use of the BCS3 at ILE. That 72 percent of respondents intended to take the BCS3 elective clearly indicates a desire to learn the BCS3 system. Furthermore, over 85 percent think that use of the BCS3 during ILE exercises should continue or expand. A commitment to the BCS3 by the CGSC will tap into the interest in the system by logistics officers attending ILE and better prepare logistics officers to employ the system in the field.

Summary

This chapter covers the analysis of all the research material as it relates to answering the research questions. By analyzing and comparing all of the research material, the study can evaluate the validity of the study as well as determine an answer to the primary research question. Analysis of the research information determined that there is a strong causal relationship with increased BCS3 training opportunities at ILE and student expressed propensity to employ the BCS3 in the field. Recommendations for further study and action follow in the conclusions chapter.

[1]Mike Stark, Observations from Modular Force Divisions in Operation Iraqi Freedom (OIF), 26 September 2007, 83.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Introduction

Purpose

The purpose of this study is to understand some of the reasons for under utilization of the BCS3 in the field and to attempt to find out if additional training and familiarization of field grade logistics officers to the system will increase their desire to use BCS3 in future assignments. In the end, the goal of the study is to increase the exposure of field grade officers to BCS3 in the hope that their understanding of the capabilities of the system will lead to increased use of the BCS3 in the field. Increased use of the system benefits the army directly by getting more return from a tool that it has invested in but also indirectly by the man-hours saved due to the increased efficiency that BCS3 delivers.

Chapter Organization

Material in this chapter covers conclusions drawn from the analysis and recommendations based on the conclusions. Discussion begins with a brief summary of the analysis chapter. The arrangement of the remaining sections is organized by individual research questions and their respective conclusions and associated recommendations. Conclusions examine the meaning, implications, and unexpected results of the findings. Recommendations include suggestions for further study and items for action. The discussion concludes with a summary of what the research accomplished.

Analysis Summary

Chapter 4 looked at the analysis of all the research material as it relates to answering the research questions. An analysis and comparison of the survey, literature review, and researcher experience answered all of the secondary research questions. This enabled the researcher to validate the study by answering the primary research question. As discussed in chapter four, the willingness to utilize the BCS3 increases for most logistics officers with training and familiarization at ILE.

Conclusions and Recommendations

Will the use of an automated logistics-reporting tool save logistics officers enough time performing duties to increase their willingness to use the BCS3?

Conclusions

Analysis showed that field grade officers think that a tool like the LRT would save time in their daily reporting process. The majority of logistics officers think the impact of the LRT would have a minor influence on operations. Implications of this research are that this capability of the BCS3 will not increase the willingness of most logistics officers to utilize the system. An unexpected finding was the fact that most respondents felt that a LRT type capability would only save 20 minutes or less. This result is unexpected because the investigator deployed with multiple units as a BCS3 embed officer and based on those experiences, much more time than this was necessary to complete LOGSTAT reporting daily. This is pertinent to the conclusion of this secondary question because time required reporting LOGSTAT data may have taken longer due to the echelon of the unit and duty position of the respondent.

Recommendations

Additional research is necessary to understand the impact of the LRT on LOGSTAT reporting procedures due to the unanswered questions of the research. Unanswered questions include at what echelon and duty position the respondents worked and how much time logistics officers that have experience with the LRT saved by using the application. One thing that the study could have done differently was to refine the survey to include a question about what type of unit experience respondents had. Due to this shortfall, the study recommends additional research in the field analyzing the amount of time required to execute LOGSTAT reporting utilizing LOGSTAR. Once this is complete replace the LOGSTAR with the LRT and analyze the new time requirement to complete reporting. This research should occur at units of all echelons with a focus on SPO and S4/G4 sections. Results of this research would validate whether LOGSTAR or the LRT are more efficient at reporting LOGSTAT data.

Do Logistics Officers Attending ILE at CGSC Have Confidence in their Knowledge of the Numerous Functions Available in the BCS3?

Conclusions

Based on the evidence most respondents are familiar with common functions in the BCS3 even though they have not used these capabilities in the field. However, knowing what capabilities are available does not mean an individual understands the capabilities, or is able to manage the capabilities. Implications of this research are logistics majors know the capabilities of the BCS3 but still do not utilize the system. There are many factors given by these officers as to why they underutilized the BCS3 as seen in table 4. There are a few unexpected findings for this research question, but none

more surprising than 12 percent of the survey respondents not knowing what the BCS3 was. This was unexpected because the BCS3 is the Army‟s logistics C2 tool that integrates with the ABCS so there is an assumption that all field grade logistics officers at least know what the system does. An additional unexpected finding was the high number of individuals that knew most of the capabilities of the BCS3 as displayed in table 2. This was surprising because these participants know the capabilities of the BCS3 despite a low number of them actually utilizing the system. This is pertinent to the conclusion of this question because it is clear that knowledge of the capabilities of the BCS3 does not lead to increased use of the BCS3 in the field. While an expectation of logistics officers was to know what the BCS3 does, knowledge of its capabilities by these officers was not assumed due to the limited use of the system in the field.

Recommendations

An unanswered question for this portion of the study concerns logistics officers‟ understanding of the capabilities of the BCS3. Rephrasing the secondary question to ask if respondents understand the capabilities versus merely knowing the capabilities would better answer the primary research question. An item of research that could have been done differently was allowing respondents to enter their reasons for avoiding the BCS3 manually. “Other” was a selection 14 times; so it would have been useful to see what these other reasons were. A final recommendation is further research on whether logistics officers actually understand the capabilities of the BCS3. A way to accomplish this in a future study is by having participants explain the purpose of each capability and how an operator, section, or unit could benefit from use of the capability.

Can Logistics Officers Attending ILE at CGSC Manage BCS3 Operators on the System?

Conclusion

Based on the evidence logistics officers attending ILE are able to fulfill BCS3 management requirements by directing operators on the system. These results support the primary research question but further research is necessary. Surprisingly, responses to this question showed that many participants" think that they are able to manage operators utilizing the BCS3 even though many had no experience with most, or any, of the capabilities. It was unexpected to find so many respondents comfortable with their ability to manage operators in areas that they had no experience This is unexpected because ability to manage individuals is usually associated with some type of experience on the subject. It is pertinent to the conclusion because it is expected that at the minimum a manager needs training and familiarization on the capabilities of the BCS3 in order to facilitate use of the system by operators.

Recommendations

An unanswered question in this area is why respondents are comfortable with their ability to fulfill BCS3 management requirements on capabilities in the BCS3 that they have no experience executing. An item of the study that could have been done differently was to have the respondent explain why they were confident in their ability to manage operators on a capability that they had no experience.

A recommendation for further action is additional research studying logistics officers at ILE or in the field managing experienced BCS3 operators before and after receiving BCS3 management training. This would provide better data to test the validity

of the responses to this question. Furthermore, assessing the ability to manage operators both pre and post training would provide valuable data on the need for or effectiveness of the training

Have Logistics Officers Attending ILE at CGSC Received any Previous BCS3 Training? If so, Was the Training Adequate to Enable them to Manage BCS3 Operators?

Conclusion

It is clear that most participants received some type of training on the BCS3, but think the training they received was insufficient regardless of the source. An implication of this is training on the BCS3 needs reconsideration to better enable operators and managers to gain confidence in the system. Training for logistics officers at ILE should focus more on managing operators instead of merely basic operator skills. Training analysis supports the primary research question because most respondents are willing to attempt additional BCS3 training despite previous training shortfalls.

Although there is not direct historical information to support the research question in the literature review there is some evidence that supports the study. A number of the CALL reports, articles and research papers discussed the need for additional training on the BCS3. Furthermore, many of the training discussions focused on improving training for advanced grade operators, commodity managers, and staff officers. Based on literature analysis, senior officers think that there is a need for advanced training on the BCS3 for logistics officers. It is clear that this evidence supports the study‟s recommendation to create BCS3 training for managers.

Recommendations

Unanswered questions related to this section are both due to things the study could have done differently. First, the survey did not give participants the option to select service school training or manually respond to the other selection. The next item relates to participants of the BCS3 pilot program during small group exercises. When asked whether training for the exercises was sufficient, respondents should have been given an option to input the specific training shortfall manually, if applicable. Another option would have been a follow on question that listed types of training deficiencies for the participants to choose. Each option would have identified the issue and helped improve future training. The same approach could have been taken with the question that asked participants to rate their experience using the BCS3 during group exercises.

The most important recommendation of this study is to increase the effectiveness of BCS3 training by making one major change to the current format across the Army. Creating a training course that familiarizes students with the BCS3 but has a focus on BCS3 management rather than the current format that consist only of operator training. This approach would have two significant affects. Officers and senior NCO‟s could concentrate on analyzing and managing information instead of creating or harvesting data. This training could be a course developed by Army Logistics University as a complement to the SPO course or additional training incorporated in the SPO course.

At ILE, the A443 elective course could follow this model, alleviating the issues mentioned by current students at ILE and mentioned in the “Observations from Modular Force Divisions in Operation Iraqi Freedom (OIF)” article in chapter 4. Additionally, ILE students need much more than four hours of training to be effective with the BCS3 during

exercises. Minimal training time is helpful only to officers with recent experience with the system. Currently, there is a four-hour training block for CPOF that only scratches the surface on the system. Because of this, many students with little or no experience avoid using the system. It is obvious that four hours of training on the BCS3 is not enough because 67 percent of the participants in the pilot program utilizing the BCS3 in the classroom think that they did not receive enough training. The best way to increase training time is allowing some of the logistics officers to take the elective course at the beginning of the school year, preferably during the elective period of the previous class. This would enable them to better utilize the system during the exercises, and increase the chances of that officer using the system in the field. Officers that received the full elective training early could augment the four-hour training course as an additional trainer in their small group. During exercises, those with minimal training would serve as an operator while the student who completed the elective would serve as a manager.

An alternative is to have all logistics officers take the elective course and bring in operators for them to manage during the exercises. Several options are available to staff the operator positions: (1) utilize the ILE BCS3 trainers augmented with Tapestry Solutions personnel, (2) train small group faculty, and (3) bring in soldiers who are BCS3 operators.

Regardless of method, this is another opportunity to validate responses to the operator management question and the training offered. Evaluating the ability of students in both training categories to manage operators would validate whether training was required. Additionally, if it determined that training is necessary to operate managers this evaluation would assess the effectiveness of BCS3 training.

Including BCS3 in the Support Operations Course could potentially increase use and familiarization of the system. Inclusion of the BCS3 in this course would be easy once all classrooms start to use the system. Additionally, because the SPO course builds on the core curriculum exercise scenario logistics officers would not actually create new data. Data generated for the core instruction could facilitate the SPO course and increase the robustness of overall BCS3 usage. The study recommends CGSC should mandate employment of the BCS3 in support of exercises as well as require that all logistics officers take the A433 elective.

Would Mandating that the BCS3 Training and Certification for FA90 Students during ILE at CGSC Increase their Willingness to Use the System in the Field?

Conclusion

ILE logistics officers would be more willing to use the BCS3 if provided adequate training and practice. Implications of these findings suggest that ILE can positively affect logistics officers" confidence and comfort level with the BCS3, which consequently affects utilization of the system in the field. Furthermore, strong support of the BCS3 by managers will subsequently increase use by subordinates and the unit as a whole. In each of the five survey questions a minimum of 55 percent of respondents agreed that they would utilize the system more with training, familiarization, understanding of the capabilities, or decreased reliance on PowerPoint or Excel. Responses to the decreased reliance on PowerPoint and Excel questions had unexpected results. These results were unexpected because military officers rely on these tools for briefing and reporting and many are resistant to change this procedure. These results are pertinent to the conclusion because students at ILE support using the BCS3 despite previous preferences for the MS

Office products. Inclusion of these questions was a deliberate attempt to include potential questions that might counter the research statement but the evidence shows that the results of these questions support the thesis.

Recommendations

While the results of the research affirm the primary research question, further study is appropriate to evaluate the expansion of the BCS3 into all of the ILE classrooms. Another research improvement to consider includes interviewing students participating in the A433 elective. Harvesting such valuable information would provide important opinions by current students regarding the quality and relevance of the training as well as suggestions to improve the program. Unfortunately, this data would have had to be from the previous class as inclusion of this data from class 2010-01 would be too late to complete this study.

Employment of the BCS3 during ILE classroom exercises is a big step in the right direction but further enhancements are necessary to maximize the BCS3 experience at ILE. Improving BCS3 training at ILE will go a long way to increase the use of the BCS3 throughout the Army.

Summary

Based on the literature review, BCS3 utilization survey, and experience of the researcher as a BCS3 embed officer it is clear that the BCS3 is underutilized across the Army. Changes are necessary for the Army to get a better return on the millions of dollars invested in the BCS3 since its inception. System changes have nearly eliminated some issues like data integrity due to the consolidation to one database. Others changes

such as updating the software to increase the ease of use have begun and there are additional improvements on the horizon. There are also some issues that may never go away such as competing systems and software blocking. With that said based on the analysis of evidence the two issues that will increase the utilization of the BCS3 the most across the Army are command influence and improved training on the BCS3 for logistics managers.

During the literature review discussion overwhelmingly focused on these two issues. Many officers think that the BCS3 requires the backing or mandated use of the system by Army senior leadership and senior unit commanders to facilitate increased utilization. Influencing use of the system can also occur at lower levels. Understanding of the BCS3 and backing by staff section leaders fosters a positive influence for BCS3 operators in the section.

The repeated discussion regarding improved training for officers coupled with the survey results clearly establish the need for improvement in this area. Army officers think improved training on the BCS3 is necessary to increase use of the system. It is clear through analysis of the evidence that the research supports the thesis although in some cases the secondary questions did not. Continued improvement to the BCS3 training at ILE coupled with "hands on" experience during exercises will undoubtedly increase the confidence and competence of logistics officers on the BCS3. Additionally, as officers continue to receive improved BCS3 training at other service schools and increased experience with the system in their unit the extended use of the BCS3 at ILE will be expected. As BCS3 training and use at ILE improves the willingness of logistics officers to utilize the BCS3 across the Army will increase.

GLOSSARY

Army Battle Command System (ABCS). A digital Command, Control, Communications, Computers and Intelligence (C4I) system for the US Army. A family of software systems it combines an automated view for commanders‟ and staff on friendly activity, logistics, fires, intelligence, airspace, and weather.

Federal Logistics Data (FEDLOG). Information on supplies and equipment such as name, part or stock numbers, and shipping codes that enables personnel to identify, order, and track these items.

In-transit Visibility (ITV). The ability to view supplies, equipment, vehicles, aircraft, and ships during movement viewed as coordinates in text or icons on a map. It may be during normal operations such as vehicles driving on a road or during the shipping process.

Limited User Evaluation (LUE).A field test of software where operators use an early version to find issues, ensure it covers the required capabilities, and submit information to improve the software.

Logistics Information Warehouse (LIW). A U.S. Army database that consolidates information from multiple sources on one easy to use web page.

Logistics status (LOGSTAT). Information on logistics data such as quantities of supplies and maintenance data as reported by a unit or supply point.

Mission Rehearsal Exercise (MRX). A training event that assesses the ability of a unit to perform their mission and provides valuable feedback to improve upon identified shortfalls.

Modified Table of Equipment (MTOE). Document that provides information on the authorized personnel and equipment of a unit.

Standard Army Management Information Systems (STAMIS). U.S. Army specific automation hardware and/or software used as a system of record for logistics transactions.

Unit Task Organization (UTO). The organization of a military unit that indentifies subordinate units and any other unit with which it has a command or support relationship.

APPENDIX A

BCS3 Utilization Survey

Count and Percent
BCS3 Utilization

		Count	Percent
Are you a Logistics officer?			
Yes		33	100.00 %
	Total Responses	**33**	**100.00 %**
What is your basic branch?			
Ordanance		11	33.33 %
Quartermaster		12	36.36 %
Transportation		10	30.30 %
	Total Responses	**33**	**100.00 %**
Check all of the following that you have used for In-transit Visibility (ITV).			
Movement Tracking System (MTS)		22	25.00 %
Force XXI Battle Command Brigade and Below (FBCB2)		13	14.77 %
Blue Force Tracker (BFT)		20	22.73 %
Battle Command Sustainment Support System (BCS3)		15	17.05 %
Joint Total Asset Visability (JTAV)		8	9.09 %
Defense Transportation Reporting and Control System (DTRACS)		6	6.82 %
Global Data Management System (GDMS)		4	4.55 %
	Total Responses	**88**	**100.00 %**
Check all of the STAMIS systems that you have experience with.			
Standard Army Maintenance System (SAMS)		23	30.67 %
Standard Army Ammunition System-Moderized (SAAS-MOD)		12	16.00 %
Standard Army Retail Supply Sysytem (SAARS)		21	28.00 %
Property Book Unit Supply Enhanced (PBUSE)		19	25.33 %
	Total Responses	**75**	**100.00 %**
Check all of the specific logistics expertise that you have.			
Maintenance		20	37.74 %
Ammunition		7	13.21 %
Petrolium, Oils, and Lubricants (POL)		9	16.98 %
Supply Support Activity (SSA)		10	18.87 %
Division Transportation Officer (DTO)		3	5.66 %
RIGGER		4	7.55 %
	Total Responses	**53**	**100.00 %**
What is your rank?			

Count and Percent
BCS3 Utilization

		Count	Percent
What is your rank?			
MAJ		33	100.00 %
	Total Responses	**33**	**100.00 %**
Do you have any experience using logistics spreadsheets to submit logistics status (LOGSTAT) reports?			
Yes		26	86.67 %
No		4	13.33 %
	Total Responses	**30**	**100.00 %**
How much time did you spend daily creating spreadsheets?			
Less than 10 minutes		12	40.00 %
10-20 minutes		4	13.33 %
20-30 minutes		8	26.67 %
30-60 minutes		3	10.00 %
More than an hour		3	10.00 %
	Total Responses	**30**	**100.00 %**
How much time did you spend daily editing spreadsheets?			
Less than 10 minutes		9	30.00 %
10-20 minutes		8	26.67 %
20-30 minutes		7	23.33 %
30-60 minutes		2	6.67 %
More than an hour		4	13.33 %
	Total Responses	**30**	**100.00 %**
How much time did you spend daily reviewing spreadsheets?			
Less than 10 minutes		6	20.00 %
10-20 minutes		8	26.67 %
20-30 minutes		9	30.00 %
30-60 minutes		2	6.67 %
More than an hour		5	16.67 %
	Total Responses	**30**	**100.00 %**
How much time did you spend daily adjusting spreadsheets?			

Count and Percent
BCS3 Utilization

		Count	Percent
How much time did you spend daily adjusting spreadsheets?			
Less than 10 minutes		9	30.00 %
10-20 minutes		12	40.00 %
20-30 minutes		4	13.33 %
30-60 minutes		2	6.67 %
More than an hour		3	10.00 %
	Total Responses	**30**	**100.00 %**
How much time would an automated LOGSTAT have saved you daily (user at a supply point enters data that is immediately available to all account holders)?			
Less than 10 minutes		8	26.67 %
10-20 minutes		8	26.67 %
20-30 minutes		2	6.67 %
30-60 minutes		4	13.33 %
More than an hour		8	26.67 %
	Total Responses	**30**	**100.00 %**
Check the amount of experience you have using BCS3?			
Extensive		1	3.03 %
Moderate		5	15.15 %
Some		15	45.45 %
Very little		6	18.18 %
None		6	18.18 %
	Total Responses	**33**	**100.00 %**
Check all of the capabilities in BCS3 that you are aware of.			
Create/edit/filter Operational Views (OPVIEWS)		20	9.71 %
In-transit Visibility (ITV) of vehicles/equipment/supplies		21	10.19 %
Reception,Staging,Onward Movement,and Integration (RSOI)		11	5.34 %
STAMIS reports		15	7.28 %
Logistics Reporting Tool (LRT)		22	10.68 %
Modifiable Unit Task Organization (UTO)		16	7.77 %
Commanders Critical Information Requirements (CCIR)		6	2.91 %
Tracked Items List (TIL)		16	7.77 %
Combat Power		21	10.19 %
Main Supply Route (MSR) status/Create/Edit routes		27	13.11 %
Briefing Tool		23	11.17 %
Subscribing/publishing to ABCS		8	3.88 %
	Total Responses	**206**	**100.00 %**
Do you know what the Battle Command Sustainment Support			

Count and Percent
BCS3 Utilization

		Count	Percent
System (BCS3) is?			
Yes		29	87.88 %
No		4	12.12 %
	Total Responses	**33**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what type of reports you require from BCS3.			
Strongly Agree		2	6.90 %
Agree		10	34.48 %
Neither agree or disagree		10	34.48 %
Disagree		6	20.69 %
Strongly disagree		1	3.45 %
	Total Responses	**29**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what ITV requirements I need to view on BCS3.			
Strongly Agree		3	10.34 %
Agree		8	27.59 %
Neither agree or disagree		10	34.48 %
Disagree		6	20.69 %
Strongly disagree		2	6.90 %
	Total Responses	**29**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what Operational Views I require from BCS3.			
Strongly Agree		4	13.79 %
Agree		12	41.38 %
Neither agree or disagree		7	24.14 %
Disagree		5	17.24 %
Strongly disagree		1	3.45 %
	Total Responses	**29**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what LOGSTAT information I require from BCS3.			
Strongly Agree		2	6.90 %
Agree		12	41.38 %
Neither agree or disagree		9	31.03 %
Disagree		6	20.69 %
	Total Responses	**29**	**100.00 %**

Count and Percent
BCS3 Utilization

		Count	Percent
Check the type of training you recieved on BCS3 (Check all that apply).			
40 Hour course		9	21.95 %
New Equiptment Training (NET)		2	4.88 %
Over the shoulder Training		8	19.51 %
On the job training (OJT)		8	19.51 %
Other		10	24.39 %
None		4	9.76 %
	Total Responses	**41**	**100.00 %**
Did your BCS3 operators recieve any training?			
Yes		12	37.50 %
No		1	3.13 %
I do not know		5	15.63 %
I did not have any BCS3 operators		14	43.75 %
	Total Responses	**32**	**100.00 %**
Check all of the capabilities in BCS3 that you have used as an operator or manager.			
Create/edit/filter Operational Views (OPVIEWS)		5	17.86 %
In-transit Visibility of vehicles/equipment/supplies		7	25.00 %
Reception, Staging, Onward Movement, and Integration (RSOI)		1	3.57 %
STAMIS reports		1	3.57 %
Modifiable Unit Task Organization (UTO)		2	7.14 %
Combat Power		2	7.14 %
Main Supply Route (MSR) status/Create/Edit routes		3	10.71 %
Briefing tool		7	25.00 %
	Total Responses	**28**	**100.00 %**
How often did you did you utilize BCS3 on your last deployment?			
Daily		3	9.09 %
Weekly		3	9.09 %
A few times		5	15.15 %
Never		22	66.67 %
	Total Responses	**33**	**100.00 %**
How often did your subordinates use BCS3 during your last deployment?			

Count and Percent
BCS3 Utilization

		Count	Percent
How often did your subordinates use BCS3 during your last deployment?			
Daily		6	18.18 %
Weekly		1	3.03 %
A few times		2	6.06 %
Never		17	51.52 %
I do not know		7	21.21 %
	Total Responses	**33**	**100.00 %**
Did you avoid using BCS3 when it was available to you?			
Yes		8	24.24 %
No		25	75.76 %
	Total Responses	**33**	**100.00 %**
Check all of the reasons why you avoided utilizing BCS3.			
Lack of training		6	13.33 %
Command influence		5	11.11 %
Unfamiliarity		6	13.33 %
Reliance on Powerpoint		2	4.44 %
Reliance on Excel		3	6.67 %
I did not need BCS3		5	11.11 %
I do not like BCS3		4	8.89 %
Other		14	31.11 %
	Total Responses	**45**	**100.00 %**
I would utilize BCS3 more if I recieve training to familiarize me with the system.			
Strongly Agree		9	29.03 %
Agree		11	35.48 %
Neither agree or disagree		7	22.58 %
Disagree		3	9.68 %
Strongly disagree		1	3.23 %
	Total Responses	**31**	**100.00 %**
I would utilize BCS3 more if you has more familiarity with the system.			
Strongly Agree		9	29.03 %
Agree		11	35.48 %
Neither agree or disagree		8	25.81 %
Disagree		2	6.45 %
Strongly disagree		1	3.23 %
	Total Responses	**31**	**100.00 %**

Count and Percent
BCS3 Utilization

		Count	Percent
I would utilize BCS3 more if you has more familiarity with the system.			
I would make better use of BCS3 if I knew all of the capabiliities of the system.			
Strongly Agree		11	35.48 %
Agree		11	35.48 %
Neither agree or disagree		8	25.81 %
Disagree		1	3.23 %
	Total Responses	**31**	**100.00 %**
I would you use BCS3 more if it could decrease my reliance on Powerpoint.			
Strongly Agree		9	29.03 %
Agree		8	25.81 %
Neither agree or disagree		12	38.71 %
Disagree		2	6.45 %
	Total Responses	**31**	**100.00 %**
I would you use BCS3 more if it could decrease my reliance on Excel.			
Strongly Agree		10	32.26 %
Agree		10	32.26 %
Neither agree or disagree		9	29.03 %
Disagree		1	3.23 %
Strongly disagree		1	3.23 %
	Total Responses	**31**	**100.00 %**
Do you plan to or are you taking the A443 BCS3 elective?			
Yes		23	71.88 %
No		9	28.13 %
	Total Responses	**32**	**100.00 %**
Did you use BCS3 during the small group exercises?			
Yes		7	21.21 %
No		26	78.79 %
	Total Responses	**33**	**100.00 %**
Did you recieve enough BCS3 training to employ the system			

Count and Percent
BCS3 Utilization

		Count	Percent
properly?			
Yes		5	17.24 %
No		24	82.76 %
	Total Responses	**29**	**100.00 %**
How do you rate your experience using BCS3 during exercises?			
Good		2	7.69 %
OK		10	38.46 %
Bad		6	23.08 %
Horrible		8	30.77 %
	Total Responses	**26**	**100.00 %**
What is your opinion on the use of BCS3 during exercises for future classes?			
Continue the program as is (a few small groups use BCS3)		3	10.34 %
Expand the program to more groups		12	41.38 %
Expand the program to all groups		10	34.48 %
Eliminate the program		4	13.79 %
	Total Responses	**29**	**100.00 %**

APPENDIX B

BCS3 Small Group Survey

Count and Percent
BCS3 Utilization

		Count	Percent
Are you a Logistics officer?			
Yes		7	100.00 %
	Total Responses	**7**	**100.00 %**
What is your basic branch?			
Ordanance		2	28.57 %
Quartermaster		3	42.86 %
Transportation		2	28.57 %
	Total Responses	**7**	**100.00 %**
Check all of the following that you have used for In-transit Visibility (ITV).			
Movement Tracking System (MTS)		4	23.53 %
Force XXI Battle Command Brigade and Below (FBCB2)		2	11.76 %
Blue Force Tracker (BFT)		4	23.53 %
Battle Command Sustainment Support System (BCS3)		3	17.65 %
Joint Total Asset Visability (JTAV)		1	5.88 %
Defense Transportation Reporting and Control System (DTRACS)		1	5.88 %
Global Data Management System (GDMS)		2	11.76 %
	Total Responses	**17**	**100.00 %**
Check all of the STAMIS systems that you have experience with.			
Standard Army Maintenance System (SAMS)		6	33.33 %
Standard Army Ammunition System-Moderized (SAAS-MOD)		3	16.67 %
Standard Army Retail Supply Sysytem (SAARS)		5	27.78 %
Property Book Unit Supply Enhanced (PBUSE)		4	22.22 %
	Total Responses	**18**	**100.00 %**
Check all of the specific logistics expertise that you have.			
Maintenance		3	42.86 %
Ammunition		1	14.29 %
Petrolium, Oils, and Lubricants (POL)		1	14.29 %
Supply Support Activity (SSA)		1	14.29 %
RIGGER		1	14.29 %
	Total Responses	**7**	**100.00 %**
What is your rank?			

Count and Percent
BCS3 Utilization

		Count	Percent
What is your rank?			
MAJ		7	100.00 %
	Total Responses	**7**	**100.00 %**
Do you have any experience using logistics spreadsheets to submit logistics status (LOGSTAT) reports?			
Yes		4	66.67 %
No		2	33.33 %
	Total Responses	**6**	**100.00 %**
How much time did you spend daily creating spreadsheets?			
Less than 10 minutes		4	66.67 %
20-30 minutes		1	16.67 %
More than an hour		1	16.67 %
	Total Responses	**6**	**100.00 %**
How much time did you spend daily editing spreadsheets?			
Less than 10 minutes		3	50.00 %
10-20 minutes		1	16.67 %
20-30 minutes		1	16.67 %
More than an hour		1	16.67 %
	Total Responses	**6**	**100.00 %**
How much time did you spend daily reviewing spreadsheets?			
Less than 10 minutes		2	33.33 %
10-20 minutes		1	16.67 %
20-30 minutes		1	16.67 %
30-60 minutes		1	16.67 %
More than an hour		1	16.67 %
	Total Responses	**6**	**100.00 %**
How much time did you spend daily adjusting spreadsheets?			
Less than 10 minutes		3	50.00 %
10-20 minutes		1	16.67 %
20-30 minutes		1	16.67 %
More than an hour		1	16.67 %
	Total Responses	**6**	**100.00 %**

Count and Percent
BCS3 Utilization

	Count	Percent
How much time would an automated LOGSTAT have saved you daily (user at a supply point enters data that is immediately available to all account holders)?		
Less than 10 minutes	3	50.00 %
10-20 minutes	1	16.67 %
More than an hour	2	33.33 %
Total Responses	**6**	**100.00 %**
Check the amount of experience you have using BCS3?		
Moderate	1	14.29 %
Some	5	71.43 %
Very little	1	14.29 %
Total Responses	**7**	**100.00 %**
Check all of the capabilities in BCS3 that you are aware of.		
Create/edit/filter Operational Views (OPVIEWS)	6	10.53 %
In-transit Visibility (ITV) of vehicles/equipment/supplies	4	7.02 %
Reception,Staging,Onward Movement,and Integration (RSOI)	2	3.51 %
STAMIS reports	4	7.02 %
Logistics Reporting Tool (LRT)	7	12.28 %
Modifiable Unit Task Organization (UTO)	5	8.77 %
Commanders Critical Information Requirements (CCIR)	2	3.51 %
Tracked Items List (TIL)	5	8.77 %
Combat Power	7	12.28 %
Main Supply Route (MSR) status/Create/Edit routes	7	12.28 %
Briefing Tool	5	8.77 %
Subscribing/publishing to ABCS	3	5.26 %
Total Responses	**57**	**100.00 %**
Do you know what the Battle Command Sustainment Support System (BCS3) is?		
Yes	7	100.00 %
Total Responses	**7**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what type of reports you require from BCS3.		

Count and Percent
BCS3 Utilization

		Count	Percent
As a manager I am able to explain to a BCS3 operator what type of reports you require from BCS3.			
Strongly Agree		1	14.29 %
Agree		2	28.57 %
Neither agree or disagree		2	28.57 %
Disagree		1	14.29 %
Strongly disagree		1	14.29 %
	Total Responses	**7**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what ITV requirements I need to view on BCS3.			
Strongly Agree		1	14.29 %
Neither agree or disagree		3	42.86 %
Disagree		2	28.57 %
Strongly disagree		1	14.29 %
	Total Responses	**7**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what Operational Views I require from BCS3.			
Strongly Agree		2	28.57 %
Agree		2	28.57 %
Neither agree or disagree		2	28.57 %
Strongly disagree		1	14.29 %
	Total Responses	**7**	**100.00 %**
As a manager I am able to explain to a BCS3 operator what LOGSTAT information I require from BCS3.			
Strongly Agree		1	14.29 %
Agree		2	28.57 %
Neither agree or disagree		2	28.57 %
Disagree		2	28.57 %
	Total Responses	**7**	**100.00 %**
Check the type of training you recieved on BCS3 (Check all that apply).			
40 Hour course		3	27.27 %
Over the shoulder Training		3	27.27 %
On the job training (OJT)		2	18.18 %
Other		3	27.27 %
	Total Responses	**11**	**100.00 %**

Count and Percent
BCS3 Utilization

	Count	Percent
Did your BCS3 operators recieve any training?		
Yes	4	57.14 %
I did not have any BCS3 operators	3	42.86 %
Total Responses	**7**	**100.00 %**
Check all of the capabilities in BCS3 that you have used as an operator or manager.		
Create/edit/filter Operational Views (OPVIEWS)	3	50.00 %
In-transit Visibility of vehicles/equipment/supplies	1	16.67 %
Modifiable Unit Task Organization (UTO)	1	16.67 %
Main Supply Route (MSR) status/Create/Edit routes	1	16.67 %
Total Responses	**6**	**100.00 %**
How often did you did you utilize BCS3 on your last deployment?		
Daily	1	14.29 %
Weekly	1	14.29 %
A few times	1	14.29 %
Never	4	57.14 %
Total Responses	**7**	**100.00 %**
How often did your subordinates use BCS3 during your last deployment?		
Daily	2	28.57 %
A few times	1	14.29 %
Never	3	42.86 %
I do not know	1	14.29 %
Total Responses	**7**	**100.00 %**
Did you avoid using BCS3 when it was available to you?		
Yes	2	28.57 %
No	5	71.43 %
Total Responses	**7**	**100.00 %**
Check all of the reasons why you avoided utilizing BCS3.		

Count and Percent
BCS3 Utilization

		Count	Percent
Check all of the reasons why you avoided utilizing BCS3.			
Lack of training		2	12.50 %
Command influence		1	6.25 %
Unfamiliarity		2	12.50 %
Reliance on Powerpoint		2	12.50 %
Reliance on Excel		2	12.50 %
I did not need BCS3		1	6.25 %
I do not like BCS3		2	12.50 %
Other		4	25.00 %
	Total Responses	**16**	**100.00 %**
I would utilize BCS3 more if I recieve training to familiarize me with the system.			
Strongly Agree		1	14.29 %
Agree		4	57.14 %
Neither agree or disagree		2	28.57 %
	Total Responses	**7**	**100.00 %**
I would utilize BCS3 more if you has more familiarity with the system.			
Strongly Agree		1	14.29 %
Agree		3	42.86 %
Neither agree or disagree		3	42.86 %
	Total Responses	**7**	**100.00 %**
I would make better use of BCS3 if I knew all of the capabiliities of the system.			
Strongly Agree		2	28.57 %
Agree		3	42.86 %
Neither agree or disagree		2	28.57 %
	Total Responses	**7**	**100.00 %**
I would you use BCS3 more if it could decrease my reliance on Powerpoint.			
Strongly Agree		2	28.57 %
Agree		2	28.57 %
Neither agree or disagree		3	42.86 %
	Total Responses	**7**	**100.00 %**
I would you use BCS3 more if it could decrease my reliance on			

Count and Percent
BCS3 Utilization

		Count	Percent
Excel.			
Strongly Agree		3	42.86 %
Agree		2	28.57 %
Neither agree or disagree		2	28.57 %
	Total Responses	**7**	**100.00 %**
Do you plan to or are you taking the A443 BCS3 elective?			
Yes		7	100.00 %
	Total Responses	**7**	**100.00 %**
Did you use BCS3 during the small group exercises?			
Yes		7	100.00 %
	Total Responses	**7**	**100.00 %**
Did you recieve enough BCS3 training to employ the system properly?			
Yes		2	33.33 %
No		4	66.67 %
	Total Responses	**6**	**100.00 %**
How do you rate your experience using BCS3 during exercises?			
Good		1	14.29 %
OK		2	28.57 %
Bad		3	42.86 %
Horrible		1	14.29 %
	Total Responses	**7**	**100.00 %**
What is your opinion on the use of BCS3 during exercises for future classes?			
Continue the program as is (a few small groups use BCS3)		1	14.29 %
Expand the program to more groups		3	42.86 %
Expand the program to all groups		1	14.29 %
Eliminate the program		2	28.57 %
	Total Responses	**7**	**100.00 %**

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